

# Digital Video Recorder (DVR) Reference Design

www.streaming-networks.com

## OEM-ready system for High Quality Digital Video Recording



### Playback Features

Fast forward, Fast Rewind, Slow Motion, Still Advance, PIP Playback

### Enhanced Quality

Special encoding modes for low bitrate and dark scene recording

### Motion Triggered recording

Pre Event recording, Configurable motion sensitivity levels, Masking and tracking area selection.

### OVERVIEW

The Streaming Networks digital video recorder (DVR) reference design is a complete, OEM-ready system that provides advanced audio/video performance and speeds time-to-market for security and surveillance applications.

### STANDALONE AND HOSTED CONFIGURATIONS

Built around the Philips PNX1302 Nexperia media processor (with TriMedia VLIW processor core), the reference design is available in two configurations – standalone and hosted.

The standalone configuration is equipped with Flash memory and a series of interfaces. The IDE interface supports common storage devices (such as CD, DVD, and hard disk), and a removable hard disk makes it simple to transport data. The Ethernet interface supports streaming while data is being stored, and the USB interface provides fast, easy development and debug in the embedded environment. There are also interfaces for UART and I<sup>2</sup>C. Multiple actuators allow advisory devices to respond to emergency situations.

The hosted configuration includes a PCI board used as a media accelerator. The PCI bus is connected to a host PC for storage, playback, and streaming, and governs audio/video capture, compression and decompression, and data transfer to and from the PC.

### MOTION DETECTION CAPABILITY

A motion-detection feature permits tracking or masking, with varying degrees of sensitivity, an unlimited number of zones within a screen. Pre- and post-event recording makes it possible to watch what happened just before and after the event that triggered the recording.

### MENU OPTIONS

Menu options let the user choose where recorded data will be sent – either streamed over the Internet or sent to the hard disk. The system can also be configured to archive data on a server, configuring the hard disk as a FAT32 or Linux-compatible file system.

### RECORDING ON HARD-DISKS (HDD)

The hard disk uses a real-time filing system that makes it convenient to watch recorded data. The system lets the user review video frame-by-frame or in real time. The system also supports viewing multiple files at once – select the desired files, and they're all displayed in real time on a single screen.

### STANDARDS COMPLIANT

The reference design uses an ISO-compliant MPEG-4 video codec and an ITU G.723.1 audio codec. The video codec offers selectable bit rates (64 Kbps to 2 Mbps), selectable video frame rates (1 to 30 fps), and supports display sizes from CIF (352x288) to VGA (640x480). There are options for video-only

### KEY FEATURES

- Fully functioning, high-performance DVR for security and surveillance applications
  - Philips PNX1302 Nexperia media processor (with TriMedia VLIW processor core)
  - ISO-compliant MPEG-4 video codec (selectable bit rates and video frame rates, display sizes up to VGA)
  - ITU G.723.1 audio codec
- Standalone or hosted (PCI) configurations
- Motion-detection features
- Synchronized audio and video
- Selectable options for managing recorded data
  - Stream over Internet
  - Store on hard disk drive (HDD)
  - Archive data on a server (with special HDD configuration)
- Real-time filing system
  - View video frame-by-frame or in real time
  - View multiple files at once in real time on a single screen



recording, audio-only recording, and for capturing both video and audio with synchronization. Audio/video synchronization is possible over the entire range of player operations, and the frame rate is guaranteed. There are input noise filters and an output de-blocking filter.

#### **PERIPHERAL SUPPORT**

For video, the reference design has a quad-channel CVBS video input (PAL/NTSC), and two video outputs – a single-channel CVBS output and a single-channel S-Video output. For audio, it has a stereo, dual-channel input and a stereo, single-channel output.

#### **RECORDING MODES**

Recording can be set to continuous or motion-triggered. Pass-through video and audio makes it possible to watch what is being recorded. Playback features include play/stop/pause, fast forward/backward, rewind,



Contact Streaming Networks for more information:

Telephone: +1 (408) 727-3904

Email: [info@streaming-networks.com](mailto:info@streaming-networks.com)

Web: [www.streaming-networks.com](http://www.streaming-networks.com)

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