

MPEG4000-4

4-Channel MPEG4 Video Encoder for PC/104plus



The MPEG4000 Video Encoder is a high-performance real-time video and audio controller capable of recording up to four concurrent video sources to the latest MPEG4 standard. It is the ideal solution for solid-state video recording, video surveillance, multimedia content creation and internet/intranet video streaming applications.



MPEG4000 utilises 32-bit PCI architecture to perform high-quality real-time video and audio capture and compression. Built-in video multiplexers allow the selection of up to four PAL or NTSC sources from up to 16 cameras.

Records
up to four
concurrent
PAL/NTSC
channels

MPEG4000-4

4-Channel MPEG4 Video Encoder for PC/104plus



**Advanced Micro
Peripherals**

THE EMBEDDED VIDEO EXPERTS

The reduced bus utilization and high-performance MPEG4 compression of the MPEG4000 allows up to four MPEG4000-4 cards to be fitted in a PC/104plus system, supplying up to 16 concurrent video streams to disk or across a network.



Field proven for

railway

And

mass transit

applications

Applications

Digital Video Server

Multi-Camera Security

Video Motion Detection

Remote Video Surveillance

Video Acquisition and Analysis

Traffic Monitoring and Control

Intranet/Internet Video Streaming

Solid-State Digital Video Recorder

Advanced Micro Peripherals Ltd

Cambridge, CB6 2HY, England

Tel (+44) 1353 659500

Tel (+44) 1353 659600

sales@ampltd.com

<http://www.ampltd.com>



MPEG4000-4

4-Channel MPEG4 Video Encoder for PC/104plus



Low latency
for
Video Telemetry
applications

Features

Composite Video Input

Live Input from NTSC/PAL

Up to 120fps Capture/Compress

Four Asynchronous Live Video Inputs

Video/Audio Synchronised Recording

Four Real-time Video Output Streams

Real-time Video Preview to System VGA

Up to Four MPEG4000 Cards per System

High-Performance PC/104plus Bus Master

Advanced Micro Peripherals Ltd

Cambridge, CB6 2HY, England

Tel (+44) 1353 659500

Tel (+44) 1353 659600

sales@ampltd.com

<http://www.ampltd.com>



The MPEG4000 supports PAL and NTSC video input with the required standard being software-selectable. Up to four MPEG4000 cards can be supported by a single high-performance CPU such as the Tiny886ULP or Micro886ULP PC/104plus computers.

MPEG4000 supports two modes of video recording: Split Video Stream and Combined Video Stream.

Split Video Stream

In the Split Video Stream mode the multiple channels being previewed are captured and recorded as separate files or streams. The encoding parameters, such as bit rate and motion detection, can be set independently for each video source. The individual MPEG4 streams can be played back by appropriate hardware/software decoders. Each input channel is decimated to one quarter screen size prior to encoding. This results in sizes of 352 x 240 for NTSC and 352 x 288 for PAL.

Combined Video Stream

When set for Combined Video Stream the four video channels being previewed are recorded as a single MPEG4 file. There is no separation and the resulting MPEG4 file can be played

as a single MPEG4 stream by appropriate hardware/software decoders. This results in sizes of 720 x 480 for NTSC and 720 x 576 for PAL.

Frame Capture Rates

In applications where recording space is restricted the MPEG4000 provides additional flexibility by supporting a range of reduced capture frame rates. For NTSC the frame rate can be set to 30, 15, 7.5, 3.75, etc down to 0.9375fps. For PAL the supported frame rate are 25, 12.5, 6.25, etc, down to 0.7813 fps.

I/P Frame Encoding

MPEG4000 supports encoding of both I and P frames. Encoding of I frames only is also supported. The supported intervals are 2, 4, 8, 16 up to 256.

Encoding Bit Rate Control

Flexible bit rate control is provided by the MPEG4000 in three modes: Variable Bit Rate (VBR), Constant Bit Rate (CBR) and Hybrid Bit Rate (HBR).

In VBR mode the picture quality is fixed according to a Quantisation value of between 1 and 31. The bit rate varies in reaction to the incoming video to maintain the set quality. VBR is appropriate for storage applications.

In CBR mode the average bit rate is fixed and the picture quality is adjusted on a frame-by-frame basis to maintain the preset average bit rate. CBR is of particular benefit where video needs to be streamed over a fixed-bandwidth link.

HBR mode is a combination of VBR and CBR in which the MPEG4000 dynamically adjusts the bit rate between preset maximum and minimum values.

Motion Detection

The MPEG4000 supports automatic motion detection on each channel independently. Parameters such as frame difference threshold and number of frames can be set independently for each channel.

Video Preview and On-Screen Display

The MPEG4000 provides a secondary video path which allows the video being recorded to be streamed across the PC/104plus bus to a host system's VGA buffer for video previewing. A built-in character generator allows text to be overlaid on the video during the recording process.

MPEG4000-4

4-Channel MPEG4 Video Encoder for PC/104plus

Technical Specification

PC104plus Bus Interface

Compliant with PCI Rev 2.1
132MBytes/sec bandwidth at 33.33 MHz bus speed
Live multi-stream (MPEG4000-4 version) capture to memory or disk

Analogue Video Input

Up to 4 concurrent Channels PAL or NTSC Video
Digital Line-Lock technology for reliable locking to any video source
Four input video multiplexer per Channel (up to 16 cameras)
4 Composite Video inputs per Channel
Dual flash Analogue-to-Digital converters
2X oversampling - 28.64MHz for NTSC, 35.47MHz for PAL

Video Input Formats

Standard CCIR601-NTSC, CCIR-PAL
NTSC-M, NTSC-Japan
PAL-B, PAL-D, PAL-G, PAL-H, PAL-I, PAL-M, PAL-N

Video Input Adjustments

Contrast (or luma gain) adjustable from 0 - 200% of original
Saturation (or chroma gain) adjustable from 0 - 200% of original
Brightness (or luma level) can be adjusted from 0 - 255 steps

Video Encoding

Real-time MPEG4 Video Encoding
ISO/IEC 14496-2, MPEG4 SOP at Level3
NTSC at up to 720x480 at 30fps (single channel)
NTSC at up to 352x240 at 120fps (4 concurrent channels)
PAL at up to 720x576 at 25fps (single channel)
PAL at up to 352x288 at 100fps (4 concurrent channels)
Supports I, P and B Frame Compression
Supports Variable Bit Rate (VBR)
Supports Constant Bit Rate (CBR)
Hybrid Bit Rate (HBR)
Motion Detection

Audio Input

Analogue Mono or Microphone Sound Input per Channel
Provides Audio/Video Synchronisation
Supports μ -Law PCM at 64KBits/sec per channel

System Requirements

x86 PC-Compatible PC/104+ Computer
PCI or AGP Display (if Video Preview is required)
Spare REQ/GNT on PC/104+ Bus
3.3V or 5V signalling PC/104+ bus

Miscellaneous

Single +5V at 750mA (single channel MPEG4000)
Operating temp 0°C to 60°C
Standard 3.6 x 3.8in PC/104+ form factor



Software Drivers

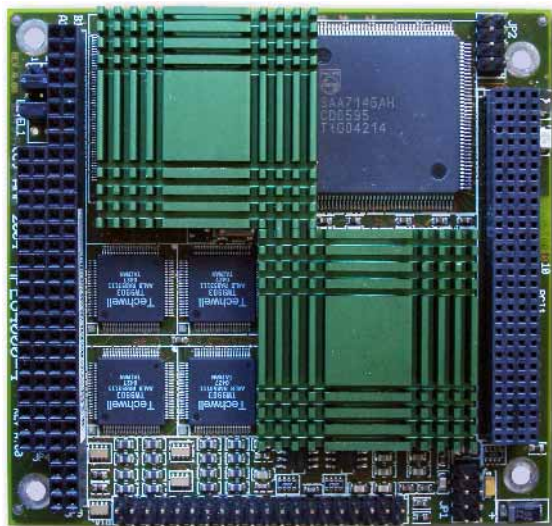
Drivers for Windows98/ME/NT/2000/XP and Linux
Sample video recording application in C/C++ source code
Other Operating Systems such as QNX, Win-CE, VxWorks, etc can be supported on demand.

Related Products

MPEG4-VStream RTSP Video Streaming SDK
MPEG4-VTelemetry Low Latency Video Telemetry SDK
Micro886ULP Ultra low power PC/104+ CPU (non VGA)
Tiny886ULP Ultra low power PC/104+ CPU with VGA

Ordering Information

MPEG4000-1 1 Channel MPEG4 Video Encoder (no Preview)
MPEG4000-4 4 Channels MPEG4 Video Encoder (Preview)

**MPEG4000-4**