The H264ULL-ENCODER is an ultra low latency, quad channel, H.264 encoder on a single PCI/104 form factor board. The H264ULL-ENCODER provides a powerful and flexible solution for capturing and compressing up to 4 analog video inputs at full size and at full frame rate to the H.264/MPEG-4 AVC (Part 10) standard.

The ultra low latency full frame rate encoding of four NTSC/PAL analog video sources offered by the H264ULL-ENCODER can be combined with Advanced Micro Peripherals H264ULL-DECODER to produce an end-to-end ruggedized low latency video streaming solution.

The high performance H.264 video compression and efficient bus utilization allows the H264ULL-ENCODER to be hosted on a low power, fanless CPU, PCI/104 system.

The H264ULL-ENCODER is supported by a set of well-documented and established SDKs that minimize development risk and shorten time to market for applications requiring video recording or streaming.

PRELIMINARY INFORMATION (Rev A.00)
Subject to change without notification
H264ULL-ENCODER

Ultra Low Latency Quad H.264 Encoder

Applications

Remote moving platforms
Remotely guided vehicles
UAVs
Vehicle cameras
Remote video surveillance
Electronic news gathering
Multi-camera systems
Traffic monitoring and control
Solid-state digital video recorder
Intranet/Internet video streaming

H.264 compression
Quad channel
Low Power
Low CPU load
H264ULL-ENCODER

Ultra Low Latency Quad H.264 Encoder

H264ULL-ENCODER Block Diagram

Features

Real time 4x full size H.264 encode at full frame rate
Composite NTSC/PAL/RS-170 video input
H.264/MPEG-4 AVC (Part 10) encoder
Ultra Low Latency technology with a latency below 40ms
Intra-refresh to improve bandwidth utilization
Multiple encodes of same input with different settings
Motion detection
Video Masking
Up to four H264ULL-ENCODER boards per system
Standard PCI/104 form factor
Drivers for WinXP-E and Linux
**PCI/104 Bus Interface**
Compliant with PCI Rev 2.1
132 MBytes/sec bandwidth at 33.33 MHz bus speed
Single +5 V supply

**Analog Video Input**
4 composite NTSC/PAL/RS-170 video input channels
Anti-aliasing filters on inputs

**Video Input Formats**
Standard CCIR601-NTSC, CCIR-PAL
NTSC-M, NTSC-N, NTSC-J, NTSC (4.43), RS-170
PAL-B/GN, PAL-D, PAL-H, PAL-I, PAL-M, PAL-NC, PAL-60

**Video Input Adjustments**
Contrast (or luma gain) adjustable from 0-200% of original
Saturation (or chroma gain) adjustable from 0-200% of original
Hue (or chroma phase) adjustable from -180° to +180°
Brightness (or luma level) can be adjusted from –25 to +25 IRE
Software adjustable Sharpness, Gamma and noise suppression

**Ultra Low Latency**
Less than 40ms encode latency

**Video Encoding**
H.264 ISO/IEC 14496-10 baseline and Main Profile up to L4.2
Interlaced and progressive video encode support
Real-time multi stream H.264 Ultra Low Latency capture
4 channel NTSC D1 (720x480) at 30fps
4 channel PAL D1 (720x576) at 25fps

**Bit rate control**
Constant bit rate (CBR)
Variable bit rate (VBR)

**Motion detection**
Motion detection at macroblock granularity
Motion vector information

**Pre- and post-processing**
Trans-rating and trans-sizing
Selective blocking of video input regions
Stream duplication

**Configuration support per stream**
Frame rate
Resolution
Bit rate control
Key frame interval
Intra-refresh mode

**System Requirements**
x86 PC-Compatible PCI/104 Computer
Spare REQ/GNT on PCI/104 Bus
3.3V signalling PCI/104 bus

**Mechanical**
Standard 3.6 x 3.8in PCI/104 form factor

**Operational characteristics**
Operating temperature 0˚C to 60˚C
Extended temperature -40˚C to +85˚C (option)

**Software**
Drivers for Win-XP, Linux
Comprehensive video recording SDK
Sample video recording application in C/C++ source code

**Related Products**
H264ULL-ENCODER-VStream RTSP Video Streaming SDK

**Ordering Information**
H264ULL-ENCODER Video Encoder Card (0 to 60˚C)
H264ULL-ENCODER-Ext Video Encoder Card (-40˚C to +85˚C)