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Frame grabbers

Matrox **Morphis QxT**

Multi-channel video capture / MPEG-4 encoding board for video analytics applications.



Key features

- x4 PCIe™ short card
- simultaneously capture from up to 16 independent CVBS video sources
- accepts NTSC, PAL, RS-170 and CCIR video standards
- real-time multi-channel MPEG-4 encoder
- 16 audio inputs[1]
- 32 TTL auxiliary I/Os
- watchdog timer for monitoring overall system integrity
- programmed using Matrox Imaging Library (MIL) sold separately
- supports 32/64-bit Microsoft® Windows® XP/Vista®

Versatile design

Matrox Morphis QxT is a cost-effective peripheral board ideal for surveillance applications with advanced video analytics that require capture from multiple standard video sources with no latency. An on-board real-time multi-channel MPEG-4 encoder for video archiving and/or transmission makes Matrox Morphis QxT ideal for demanding surveillance applications.

16 video decoder architecture

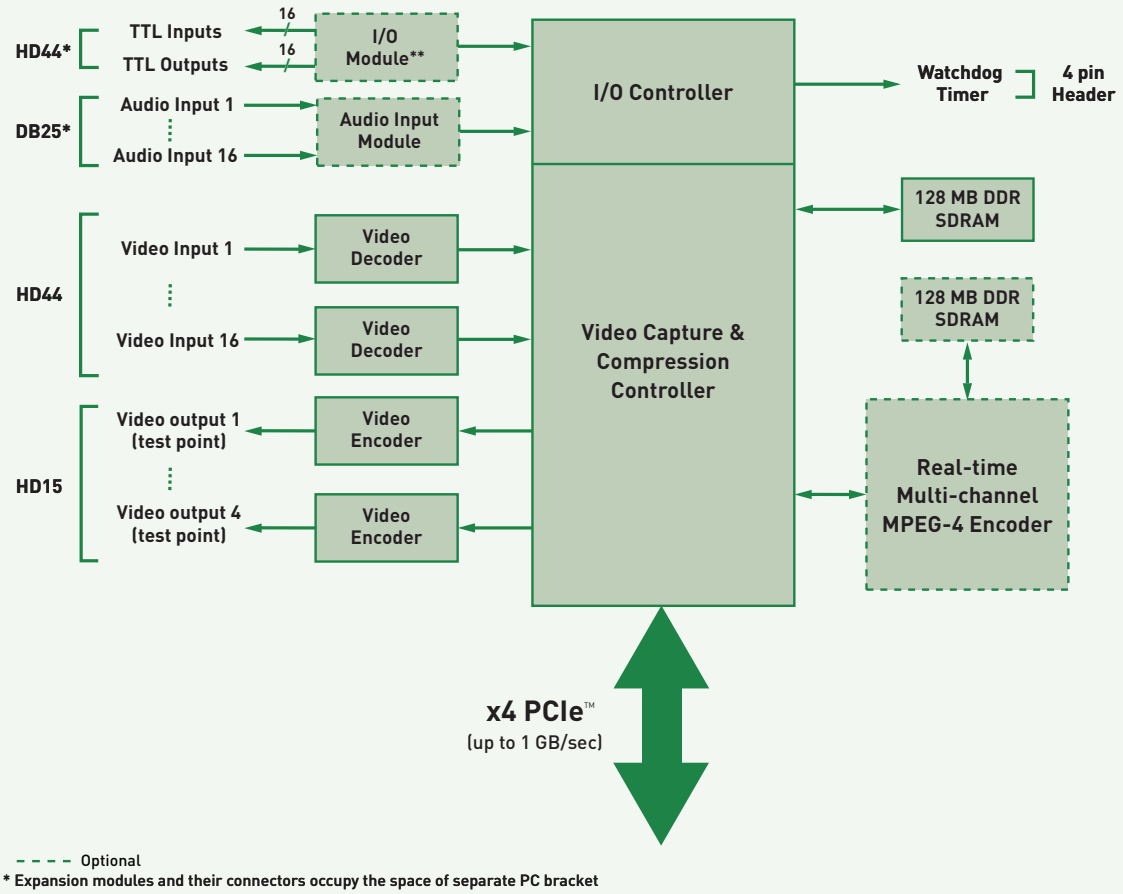
Matrox Morphis QxT allows for the simultaneous capture from up to 16 independent standard video sources. A large dedicated buffer guarantees reliable capture of raw video to the host PC for use in video analytics operations or display, and simultaneously to the onboard real-time multi-channel MPEG-4 encoder. Moreover, video images can be formatted in real-time during capture. Formatting features include cropping (ROI), horizontal and/or vertical flipping and subsampling.

Real-time multi-channel MPEG-4 encoding with audio

Matrox Morphis QxT integrates a real-time multi-channel MPEG-4 encoder. MPEG-4 is the ISO/IEC standard developed by MPEG (Moving Picture Experts Group), which provides an optimal compression ratio without compromising quality, ideal for the transmission of video over a medium with restricted bandwidth or for maximizing video storage. The real-time multi-channel MPEG-4 encoder supports 16 CIF[2] or four full D1[3] video streams at once. Parameters such as frame rate, resolution, or bit rate can be changed on-the-fly and on a per channel basis without stoping and restarting the encoding. Up to 16 mono audio inputs can also be encoded (ADPCM[4]) synchronized to/with with the video with a sampling rate from 8KHz to 48KHz.

MATROX
IMAGING

Matrox Morphis QxT



Accessory functionality

In addition to the core video capture and compression functionality, Matrox Morphis QxT incorporates a variety of features to simplify overall integration. These features include a watchdog timer for automatically recovering from application or system failure, auxiliary I/Os that eliminate the need for a third-party I/O board, and four analog spot monitor outputs to view any four video inputs.

Field-proven application development software

Matrox Morphis QxT is supported by the Matrox Imaging Library (MIL), a comprehensive collection of software tools for developing industrial imaging applications. MIL features interactive software and programming functions for image capture, processing, analysis, annotation, display and archiving. The playback of MPEG-4 A/V streams is performed through third-party video players. These tools are designed to enhance productivity, thereby reducing the time and effort required to bring your solution to market. Refer to the MIL datasheet for more information.

Third-party A/V playback



MPEG-4 playback is performed through third-party video players.

Specifications

Video capture

- analog composite (CVBS) NTSC/PAL/RS-170/CCIR
- connect and simultaneously capture from up to 16 independent video sources
- square pixel digitization
- input cropping (ROI capture)
- horizontal and/or vertical flip
- subsampling to 1/16th of a field or frame
- controllable automatic gain control (freeze with manual adjust)
- BGR32 packed, BGR24 packed, RGB planar, YUV422 packed and MONO8 pixel formats
- 32-bit color graphic/text overlay with alpha blending

Compression

- MPEG-4 compression
- handles monochrome and color (YUV422) video
- programmable resolution and frame rate
- bit rate control
  - constant
  - variable with maximum rate
  - variable with minimum quality factor
- programmable GOP (Group of Picture)
- real-time performance including four D1 (720 x 480/576) or 16 CIF (352 x 240/288) video streams simultaneously
- interlaced encoding (D1 only)
- mono audio encoded in ADPCM with a sampling rate from 8 kHz to 48 kHz and added to the MPEG-4 stream[1]
- MPEG-4 stream compatible with Xvid[5] codec

Host interface

- x4 PCIe™ host interface
- interrupts for start and end of field, frame, and sequence capture

Connectors

- HD-44 for composite video signals
- HD-15 for video test signal outputs
- DB-25 for audio inputs
- HD-44 for TTL I/Os

Dimensions and environmental information

- MORQ/16VD/M4 and MORQ/16VD: 16.76 cm L x 11.18 cm H (6.6" x 4.4")[6]
- MORQ-AUDIO: 5.59 cm L x 9.14 cm H (2.2" x 3.6")[6]
- MORQ-I/O: 3.81 cm L x 9.40 cm H (1.5" x 3.7")[6]
- operating temperature: 0° C to 55° C (32° F to 131° F)
- relative humidity: up to 95% (non-condensing)
- FCC class B
- CE class B
- RoHS-compliant

Software drivers

- Matrox Imaging Library (MIL) drivers for 32/64-bit Microsoft® Windows® XP/Vista®

Ordering Information

Hardware

Part number	Description
MORQ/16VD/M4*	Standard analog color/monochrome x4 PCIe™ frame grabber with 16 video decoders and integrated MPEG-4 video encoder.
MORQ/16VD*	Standard analog color/monochrome x4 PCIe™ frame grabber with 16 video decoders.
MORQ-AUDIO*	Add-on module for 16 audio inputs.
MORQ-I/O*	Add-on module for 32 TTL I/Os.

Software

Refer to MIL datasheet.

Notes:

1. Only available as part of the MPEG-4 stream.
2. Common Intermediate Format (CIF) or 352 x 240 resolution in NTSC and 352 x 288 resolution in PAL.
3. 720 x 480 resolution in NTSC and 720 x 576 resolution in PAL.
4. Adaptive Differential Pulse-Code Modulation (ADPCM).
5. Available at www.xvid.org.
6. Dimension from bottom edge of goldfinger to top edge of board.

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