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
- available software is sold separately and includes Matrox Imaging Library (MIL)/ ActiveMIL and MIL-Lite/ActiveMIL-Lite
- support for Microsoft® Windows® XP and Linux[2, 3]

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[4] or four full D1[5] 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[6]) synchronized to and along with the video with a sampling rate from 8KHz to 48KHz.

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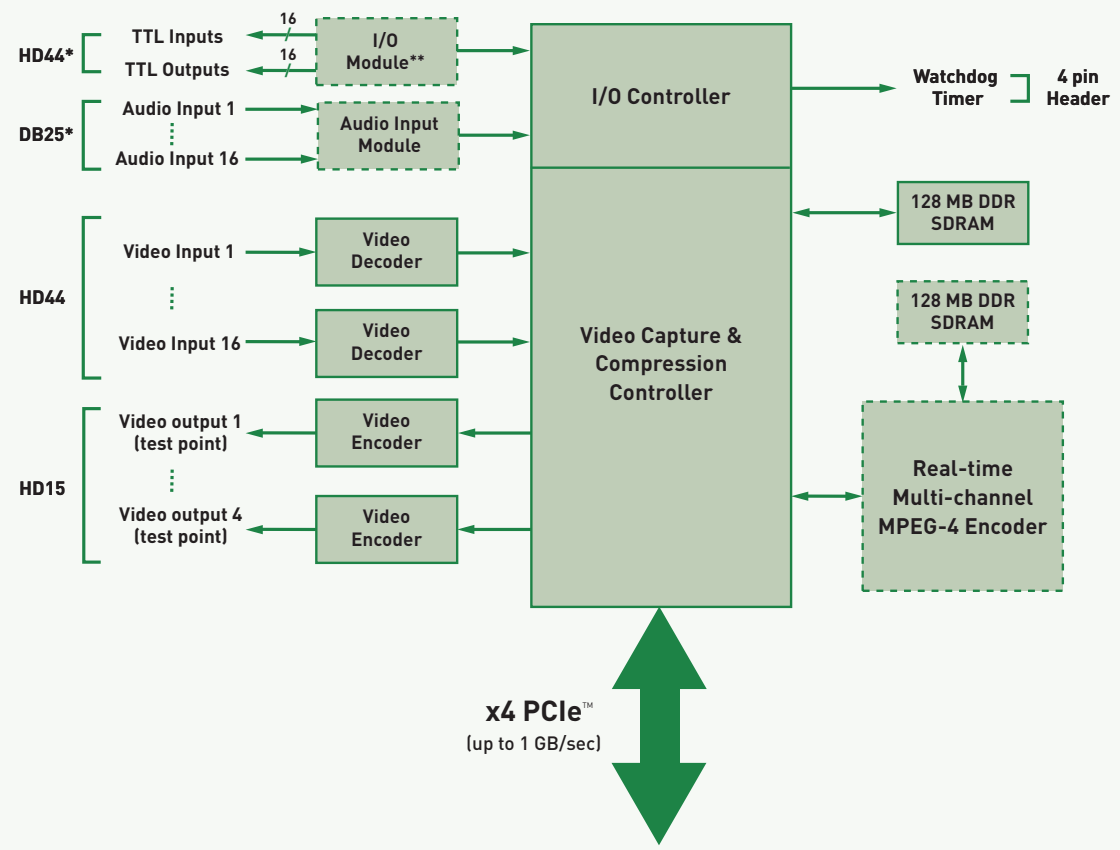
IMAGING

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.

Software

Software support is available for Microsoft® Windows® XP and Linux[2, 3], and consists of Matrox Imaging Library (MIL)/ActiveMIL or MIL-Lite/ActiveMIL-Lite development toolkits for creating custom applications. MPEG-4 playback is performed through third-party video players.

Third-party A/V playback

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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[8] 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")[7]
- MORQ-AUDIO: 5.59 cm L x 9.14 cm H (2.2" x 3.6")[7]
- MORQ-I/O: 3.81 cm L x 9.40 cm H (1.5" x 3.7")[7]
- 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 Environment

- host driver for Microsoft® Windows® XP and Linux[2, 3]
- programmed under Microsoft® Windows® using MIL/MIL-Lite ('C' DLLs) with Microsoft® Visual C++® (.NET 2003)
- programmed under Microsoft® Windows® using ActiveMIL/ ActiveMIL-Lite (ActiveX controls) with Microsoft® Visual Basic® .NET 2003 or C++® .NET 2003
- programmed under Linux using MIL/MIL-Lite with GNU Compiler Collection (GCC)[2, 3]

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.

Ordered separately:
Software

Part number	Description
MIL LITE 8 WIN	MIL-Lite board control library for Microsoft® Windows® XP (see MIL-Lite brochure for more details).
MIL 8 WIN P *or* U	Matrox Imaging Library (MIL) for Microsoft® Windows® XP (see MIL brochure for more details).
MIL LITE 8 LNX[2, 3]	MIL-Lite board control library for Linux (see MIL-Lite brochure for more details).
MIL 8 LNX U[2, 3]	Matrox Imaging Library (MIL) for Linux (see MIL brochure for more details).

Notes:

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

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