

# Matrox M264

## Instant Density and Quality Boost for H.264 Encoding and Decoding

The Matrox M264 family features hardware-based multi-channel 8- and 10-bit H.264 encoding, decoding and transcoding capabilities. M264 gives a performance boost to standard PCs to enable H.264-based broadcast contribution, distribution and production systems such as video servers, IP multiviewers, high-density media encoders, transcoders, and render farms. When enabled by M264, 4K workflows can have the same flexibility and user experiences that are readily available today for HD workflows. The Matrox M264 hardware is supported by the Matrox DSX Software Development Kit. Please refer to the Matrox DSX Developer Products datasheet for information on file I/O, software codecs and CPU effects.



### Key Features

- Multi-channel H.264 encoding, decoding, and transcoding
- Up to 4K resolutions supported
- 4:2:2 10-bit and 4:2:0 8-bit
- Dynamic codec control
- Hardware based deinterlacing and scaling
- Realtime and faster than realtime operation
- Sony XAVC compliant encoding including 4K Intra Class 480 profile
- Panasonic AVC-Ultra compliant
- Feature rich DSX SDK

### System Interface

- Single-slot PCIe x8 Gen2 interface
- 1/2 length card (M264)
- 3/4 length card (M264 S2 and S3)
- DMA engine for uncompressed data transfers at 3GB/sec
- Multiple card support

### H.264 Codec Engine

- Supports Baseline, Main, High, High10, and High10 Intra, High 4:2:2 and High 4:2:2 Intra profiles up to Level 5.2
- Supports realtime and faster than realtime encoding, decoding and transcoding
- Supports UHD, HD, SD, and custom broadcast resolutions (up to 60fps)
  - 4:2:0 YUV 8-bit
  - 4:2:2 YUV 10-bit
- Supports both interlaced and progressive video
- CABAC/CAVLC entropy coding
- Selectable bit rate encoding
  - VBR (Variable Bit Rate)
  - CBR (Constant Bit Rate)
- Scene detection
- Dynamic rate control
- Dynamic GOP control
- Deblocking filtering
- Low latency encoding targeting <20 ms (I or IP GOP)
- Total bitrates of 500 Mbps (CABAC) or 800 Mbps (CAVLC)
- Compliant with Panasonic AVC-Ultra
- Compliant with Sony XAVC

### Video Processing Engine

- Multi-channel Motion Adaptive Deinterlacer
  - Pixel based operation
  - Temporal and spacial-based motion estimation
  - Anti-Aliasing filtering
- Multi-channel scaler
  - Up, down and cross scaling
  - Supports custom resolutions and standard broadcast resolutions up to UHD
- In-line processing
  - Deinterlace/scale before encoding
  - Deinterlace/scale after decoding
- Up to 1.5Gpixels/sec processing (M264)

## Performance Chart (Number of Streams)

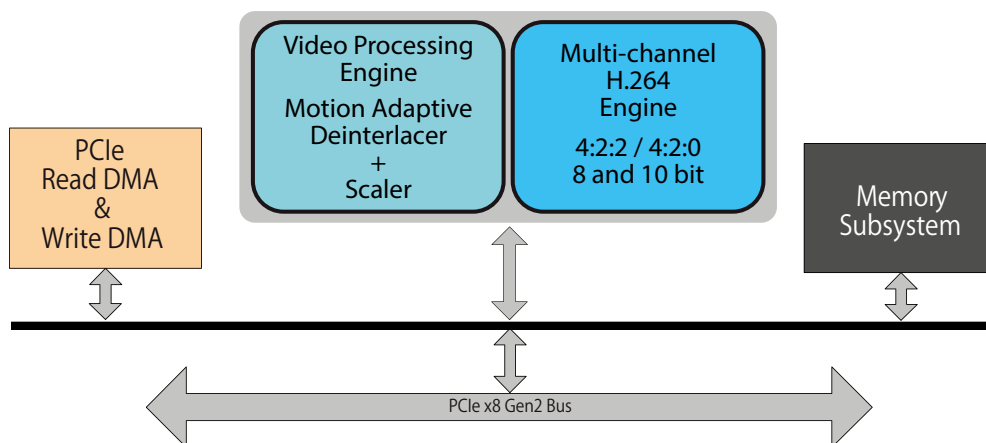
### 4:2:0 8-bit Long GOP

Resolutions	M264	M264 S2	M264 S3
3840x2160p60	2	4	6
1920x1080p60	8	16	24
1920x1080i30	16	32	48
1280x720p60	16	32	48
Proxy (720X480p30)	100	200	300

### 4:2:2 10-bit

Resolutions	Generic	Sony XAVC / Panasonic AVC-Ultra	M264	M264 S2	M264 S3
3840x2160p60	Intra frame	Class 300 & Class 480 / AVC-Intra 4K	1	2	3
1920x1080p60	Intra frame	Class 200 / AVC-Intra 200	3	6	9
1920x1080i30	Intra frame	Class 100 / AVC-Intra 100	6	12	18
1920x1080p60	Long GOP	XAVC Long50 / AVC-LongG50	5	10	15
1920x1080i30	Long GOP	XAVC Long25 / AVC-LongG25	10	20	30
1280x720p60	Long GOP	XAVC Long25 / AVC-LongG25	10	20	30

## Matrox M264 Block Diagram



[www.matrox.com/video](http://www.matrox.com/video)

Corporate Headquarters — Matrox Video Products Group  
 Tel: (514) 822-6364, (800) 361-4903 (North America) Fax: (514) 685-2853  
 E-mail: [video.info@matrox.com](mailto:video.info@matrox.com)

**matrox**<sup>®</sup>  
 Digital Video Solutions

Any particular application may or may not take advantage of all the Matrox DSX features described in this brochure. Matrox Electronic Systems Ltd. reserves the right to make changes in specifications at any time and without notice. The information provided by this document is believed to be accurate and reliable. However, no responsibility is assumed by Matrox Electronic Systems Ltd. for its use, nor for any infringements of patents or other rights of third parties resulting from its use. No license is granted under any patents or patent rights of Matrox Electronic Systems Ltd. Matrox makes no warranties, express or implied, with respect to the performance of third party products described herein. Matrox and Matrox DSX are registered trademarks and Matrox X.AVCio, Matrox X.open, Matrox X.io, Matrox X.linkSD, Matrox X.linkHD, Matrox X.effects, Matrox X.scaler, Matrox X.mio, Matrox X.mio2, Matrox X.DVI and Matrox X.RIO are trademarks of Matrox Electronic Systems Ltd. Inc. Other product names mentioned in this document may be registered trademarks or trademarks of other companies. Printed in Canada, August 2016