

MAGEWELL

Eco Capture QL-SDI 4K M.2 Technical Specifications

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Supported OS

- Windows
 - Windows 7/8/8.1/10/11/Server 2008/Server 2008 R2/Server 2012/Server 2016 (x86 & x64) and above
- Linux (support x86, x64 & ARM architecture)
 - Ubuntu 12.04/14.04/16.04/17.04/17.10/18.04 (x86 & x64) and above
 - CentOS 6.5/7 (x86 & x64) and above
 - Fedora 25/26/27 (x86 & x64) and above
 - Red hat 6.5 (x86 & x64) and above
 - Other Linux OS with kernel version 2.6.35 and above

Recommended OS (tested)

- Windows
 - Windows 7 Ultimate/8.1 Enterprise/10 Enterprise/Server 2008 R2 DataCenter/Server 2012 R2 DataCenter/Server 2016 R2 DataCenter (x86 & x64)
- Linux
 - Ubuntu 12.04/14.04/16.04 (x86 & x64)
 - Ubuntu 17.04/17.10/18.04 (x64)
 - CentOS 6.5/7.2 (x86 & x64)
 - Fedora 25/26 (x64)
 - Red hat 6.5 (x86 & x64)

Supported APIs

- Windows
 - DirectShow
 - DirectKS
 - Wave API/DirectSound/WASAPI
- Linux
 - V4L2
 - ALSA

Supported Software

- VLC
- VirtualDub
- OBS
- XSplit
- vMix
- VidBlaster
- Wirecast
- Microsoft Media Encoder
- Adobe Flash Media Encoder
- Any other DirectShow/V4L2 encoding/streaming software

Input Interfaces

- 1-channel SD/HD/3G SDI
- 1 dual-link HD/3G, supporting 2SI mode only
- 1 quad-link 3G, supporting 2SI mode only

Host Interfaces

- M.2 2280 Type M (PCIe Gen2 x4)

Input features

- 1 Single-link SD/HD/3G SDI mode:
 - Support for input video resolutions up to 2048x1080 pixels, only one stream can be captured
- 1 Dual-link HD/3G SDI Mode:
 - Support for input video resolutions up to 4096x2160 pixels
- 1 Quad-link 3G SDI Mode:
 - Support for input video resolutions up to 4096x2160 pixels

SDI Specific Features

- Integrated cable equalizer extending the cable length as follows:
 - up to 330m for SD-SDI signals
 - up to 190m for HD-SDI signals
 - up to 150m for 3G-SDI signals
- Support for SD/HD/3Ga/3Gb/3Gb-DL/3Gb-DS/3Ga-QL/3Gb-QL standards
- Support for 2K (2048x1080) and 4K (4096x2160) mode
- Support for RGB 4:4:4, YCbCr 4:4:4, YCbCr 4:2:2 color sampling
- Support for 10/12-bit color depth
- Support for extraction of SMPTE 352 payload identifier
- Support for up to 8 (mono) audio channels at 48KHz
- Support for extraction of audio formation information & channel status data
- Limited support of 3Gb-DS: only the first stream can be captured
- Support for Closed Caption via the SDK

Video Capture Formats

- Support for capture image resolutions up to 2048x1080 pixels in single link mode
- Support for capture image resolutions up to 4096x2160 pixels in dual and quad link mode
- Support for capture frame rates up to 144fps (Actual capture frame rate may be limited by PCIe bandwidth.)
- Support for 4:2:0 8-bit capture formats: NV12, I420, YV12
- Support for 4:2:2 8-bit capture formats: YUY2, YUYV, UYVY
- Support for 4:4:4 8-bit capture formats: V308, IYU2, V408, BGR24, BGR32
- More capture formats are supported via SDK

Video Processing Features

- Video processing pipelines with ~720M pixels/s processing bandwidth
- 10-bit 4:4:4 video processing
- Video scaling
- Video de-interlacing
 - Weave
 - Blend top & bottom field
- Video color format conversion
 - Auto or manual selection of input color format & quantization range
 - Auto or manual selection of capture color format, quantization range & saturation range
 - Support for RGB, YCbCr 601, YCbCr 709, YCbCr 2020 color formats
 - Support for Limited or Full quantization range
 - Support for Limited, Full & 'Extended gamut' saturation range
- Video frame rate conversion

Multiple Cards per System

- Support for multiple cards plugged into one system
- On-board 16 positions DIP switch to set card number
- System hardware device tree will display "01: Eco Capture QL-SDI 4K M.2" when DIP switch is set to 1, and so on
- The video and audio device names displayed in your software will include the card number (set by the DIP switch)

Multiple Replicated Capture Streams

- Unlimited capture streams for any one input channel, but the capture streams should be in the same capture format.

Timestamp & A/V Synchronization

- Hardware based 100ns high resolution clock
- Audio frames (192 audio samples) & video frames are stamped with the hardware clock
- Hardware clock can be synchronized across cards (via the SDK)

Video Capture SG-DMA

- ~1600MB/s DMA bandwidth in PCIe 2.x system
- ~800MB/s DMA bandwidth in PCIe 1.x system
- Support for auto detection of Intel tiled GPU surface
- Support for DirectGMA for AMD video adapter chipsets
- Support for GPUDirect for Nvidia video adapter chipsets

SDK

- Magewell Capture SDK for DirectShow (Windows) or V4L2 (Linux) for easy integration
- Magewell Capture SDK for DirectKS (Windows) or ioctl (Linux) for maximum flexibility & performance

Windows Driver Tweaks

- All options can be controlled by three levels of registry key: global level, product level and device level
- Video, Audio and Crossbar filter names can be customized via registry keys

Firmware Upgrade

- Multiple cards in one system can be upgraded simultaneously
- Cards can be upgraded without a system power shutdown (In most cases, even a reboot is not needed)
- Safe upgrade. If a power-off or system breakdown occurs when the firmware is being upgraded, it will automatically revert to the initial version.

LED Indicator

- Status LEDs indicate the working state of each channel:
 - Pulsing slowly: idle
 - On: input signal locked
 - Off: input signal unlocked
 - Double blinks: memory failed or FPGA configuration failed

Form Factor

- M.2 2280 standard size

Accessories

- 4 X MMCX to BNC cables

Power Consumption

- Max current at 3.3V: ~ 2.5 A
- Max power consumption: ~ 8.1 W

Working Environment

- Operating temperature: 0 to 40 deg C
- Storage temperature: -20 to 70 deg C
- Relative Humidity: 5% to 90% non-condensing