MAGEWELL

Eco Capture SDI 4K Plus M.2 Technical Specifications

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Revised 24/07/2020

Supported OS

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

- MMCX

- SD/HD/3G/6G/12G SDI

Loop-through Interfaces

- MMCX
  - SD/HD/3G/6G/12G SDI

Host Interface

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

Input Features

- Support for input video resolutions up to 4096x2160 pixels

SDI Specific Features

- Integrated cable equalizer extending the cable length as follows:
  - up to 430m for SD-SDI signals
  - up to 200m for HD-SDI signals
  - up to 110m for 3G-SDI signals
  - up to 50m for 6G-SDI signals
  - up to 30m for 12G-SDI signals
- Support for SD/HD/3Ga/3Gb/3Gb-DL/3Gb-DS/6G/12G standards
- Support for 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
- Support for Closed Caption via SDK

Video Capture Formats

- Support for capture image resolutions up to 4096x2160 pixels
- Support for capture frame rates up to 144fps (Actual capture frame rate can 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 ~720Mpixels/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 to one system
- On-board dip switch to set card number with 16 positions
- System hardware device tree will display "01: Eco Capture SDI 4K Plus M.2" when dip switch is set to 0001, 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 hardware clock
- Hardware clock can be synchronized across cards (via SDK)

Video Capture SG-DMA

- ~1600MB/s per channel DMA bandwidth in PCIe 2.x system
- ~800MB/s per channel 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, 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 power off or system break down occur when the firmware is being upgraded, it will automatically restore 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

- **MMCX to BNC** cable

Power Consumption

- Max current at 3.3V: ~ 2.17 A
- Max power consumption: ~ 7.16 W

Working Environment

- Operating temperature: 0 to 40 deg C
- Storage temperature: –20 to 70 deg C

- Relative Humidity: 5% to 90% non-condensing