MAGEWELL

Pro Capture Dual SDI Technical Specification

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Revised 13/07/2017

Supported OS

- Windows 7/8/8.1/10/2008/2008 R2/2012 (x86 & x64)
- Linux (V4L2 kernel driver source code under NDA, supports x86, x64 & arm architecture)
- OS X 10.9–10.11
- macOS 10.12

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

- 2x BNC
  - SD/HD/3G SDI

Host Interfaces

- PCIe Gen2 x4

Loop-through Interfaces

- 2x SMA (SDI loop-through)

Input Features

- Support for input video resolutions up to 2048x1080 pixels

SDI Specific Features

- Integrated cable equalizer supporting cable lengths up to 230M for HD signals
- Support for SD/HD/3Ga/3Gb/3Ga-DL/3Gb-DS standards
- Support for 2K (2048x1080) 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 (channels 1–8 from the 16 available in the SDI spec)
- Support for extraction of audio formation information & channel status data
- Limited support of 3Gb-DS: only the first stream can be captured
- Limited support for capture of the first link of dual link interfaces:
    - YCbCr 4:2:2 10-bit 1080p 50/59.94/60: captured as 1080i 50/59.94/60
    - YCbCr 4:4:4 10-bit: captured as 4:2:2
    - RGB 4:4:4: R/B sub-sampled

Video Capture Formats

- Support for capture image resolutions up to 2048x2160 pixels
- Support for capture frame rates up to 144fps (Actual capture frame rate can be limited by PCIe bandwidth, and at higher image resolutions - above 1280x1024 - by the pixel clock of the on-board video processing hardware. eg. Max frame rate at 1920x1080 = ~80fps.)
- 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
- Support for 4:4:4 10-bit capture formats: V410, Y410
- More capture formats are supported via Pro Capture SDK for DirectKS

Video Processing Features

- Two video processing pipelines with ~180Mpixels/s processing bandwidth for each one
- Full 10-bit video processing
- Video cropping
- Video scaling
- Video de-interlacing
    - Weave
    - Blend top & bottom field
    - Top field only
    - Bottom field only
- Video aspect ratio conversion
    - Auto or manual selection of input aspect ratio
    - Auto or manual selection of capture aspect ratio
    - Three aspect ratio conversion modes: Ignore (Anamorphic), Cropping or Padding (Letterbox or Pillarbox)
- 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
- Video OSD composition
    - Support for PNG OSD image (up to 2048x2160)
    - Support for dynamic loading of RGBA OSD image via SDK

Multiple Cards per System

- Support for multiple cards plugged to one system
- On-board rotary switch to set card number, with 16 positions from 0 to F

- System hardware device tree will display “01: Pro Capture Dual SDI” when rotary 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 rotary switch)

Multiple Capture Streams

- Unlimited capture streams for any one input channel
- Independent cropping, aspect ratio, color format, resolution, frame rate, de-interlacing and color adjustment settings for each individual stream

Ultra Low Latency Support

- Latency of 64 video lines
- Partial notification mode in SDK

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

- ~400MB/s per channel DMA bandwidth in PCIe 2.0 system
- ~200MB/s per channel DMA bandwidth in PCIe 1.0 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

- Pro Capture SDK for DirectShow for easy integration (Windows)
- Pro Capture SDK for DirectKS for maximum flexibility & performance (Windows)

Windows Driver Tweaks

- All options can be controled 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)

LED Indicator

- Status LEDs indicate the working state of each channel: idle, input signal locked, memory failed or FPGA configuration failed.

Form Factor

- Low profile PCIe x4 Add-on Card
- 116.19mm x 68.88mm (without PCI bracket)

Accessories

- **Low Profile** bracket
- 2 x **SMA to BNC** cables

Power Consumption

- High Performance Firmware
  - Max current at 12V: ~ 0.64 A
  - Max current at 3.3V: ~ 0.45 A
  - Max power consumption: ~ 9.15 W
- Low Power Comsuption Firmware|
  - Max current at 12V: ~ 0.57 A
  - Max current at 3.3V: ~ 0.45 A
  - Max power consumption: ~ 8.34 W

Working Environment

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