MAGEWELL

USB Capture AIO 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)
    - 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
- Mac
    - OS X 10.9/10.10/10.11
    - macOS 10.12 and above
- Chrome OS

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)
- Mac
    - OS X 10.9.5/10.10/10.11.2/10.11.3/10.11.4
    - macOS 10.12/10.13.2/10.13.3/10.14.3/10.15

Supported APIs

- Windows
    - DirectShow
    - Wave API/DirectSound/WASAPI
- Linux
    - V4L2
    - ALSA
- macOS
    - AVCaptureSession
    - AudioUnit

Compatible Software

- Zoom
- Skype
- Mircosoft Teams
- GoToMeeting
- Gstreamer
- VLC
- OBS Studio

- XSplit
- QuickTime Player
- Any other DirectShow/V4L2/AVCaptureSession based encoding or streaming software

Input Interfaces

- DVI-I
  - DVI 1.0
  - HDMI 1.4a (via breakout cable)
  - VGA (via DVI-to-VGA convertor)
  - Component (via breakout cable)
- DB9
  - YC (S-Video)
  - Composite video
  - Analog audio (L+R)
  - Component video
- BNC
  - SD/HD/3G SDI

Host Interface

- USB 3.0
  - compatible with USB 2.0
  - compatible with USB 3.1 Gen 1

Input features

- Auto scan of video input sources when there is no signal input to the currently selected input source
- Manual selection of video input source
- Auto selection of linked (embedded) audio input source when the video input source changes
- Manual selection of audio input source
- Support for input video resolutions up to 2048x2160

VGA & Component Specific Features

- 12-bit ADC
- Support for RGB & YCbCr (YUV) color formats
- Support for 'Separated sync', 'Composite sync', 'Sync-on-green' (SOG), 'Sync-on-luminance' (SOY)
- Support for DMT, CEA, CVT, GTF video timings
- Input signals up to 165MHz pixel rate are digitized with 1:1 sampling
- Input signals over 165MHz pixel rate can be digitized with horizontal sub-sampling (resulting in some image quality loss - NOT recommended)
- Auto detection of RGB & YCbCr color formats
- Auto or manual sampling phase adjustment
- Auto horizontal alignment
- Support for customized video timings
- Support for customized video resolutions for CVT/GTF timings

HDMI Specific Features

- 225MHz HDMI receiver
- Adaptive HDMI equalizer support for cables lengths up to 30M
- Support for customized EDID
- Support for extraction of AVI/Audio/SPD/MS/VS/ACP/ISRC1/ISRC2/Gamut InfoFrames
- Full colorimetry support
- Support for 8/10/12-bit color depths
- Support for RGB 4:4:4, YCbCr 4:4:4, YCbCr 4:2:2 color sampling
- Support for up to 2-channel IEC60958 audio streams
- Support for extraction of audio formation information & channel status data
- Support for extraction of video timing information
- Support for extraction of 3D format information
- Support for Side-by-Side Half, Top-and-Bottom, Frame Packing 3D mode.

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 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 2 (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
- 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

YC & Composite Specific Features

- 12-bit ADC
- Support for NTSC, PAL, SECAM standards
- Auto detection of the standard of input signal

Video Capture format

- Support for capture resolutions up to 2048x2160
- Support for capture frame rates up to 120fps (Actual capture frame rate can be limited by the USB bandwidth and internal working frequency. Typical capture frame rates on the Intel USB3.0 controller are as follows.)
    - 1920x1080 YUY2 (up to 75fps)
    - 1920x1080 RGB24 (up to 60fps)
- Support for 4:2:2 8-bit capture format: YUY2, UYVY
- Support for 4:4:4 8-bit capture format: RGB24, RGB32
- The default capture format is YUY2. More capture formats can be set using USB Capture Utility.

Video Processing Features

- Video processing pipelines with 160 Mpixels/s processing bandwidth
- 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 color formats
    - Support for Limited or Full quantization range
    - Support for Limited, Full & 'Extended gamut' saturation range
- Video frame rate conversion
- Vertical flip and mirror

Multiple devices on one computer

- Support for connecting multiple USB devices to one system
- Support for setting the device serial number as the device name shown in the system using USB Capture Utility

SDK

- The USB Capture SDK provide functions including signal status extraction, capture configuration and real-time audio & video capture, etc.

Firmware Upgrade

- Multiple devices in one system can be upgraded simultaneously

LED Indicator

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

Form Factor

- 116mm (L) x 116mm (W) x 32mm (H)

Accessories

- USB 3.0 cable
- **DVI** to **VGA** connector
- **DVI-I** to **HDMI + Component** breakout
- **DB9** to **YC + Composite + Analog Audio + Component**breakout

Power Consumption

- 5V max current: ~1 A
- max power consumption: ~5 W

Working Environment

- Operating temperature: 0 to 45 deg C
- Storage temperature: -20 to 70 deg C
- Relative Humidity: 5% to 90% non-condensing