

XtremeDV-HD2+ Datasheet

EMS Video Capture Hardware PCIe, PCI-X & USB 3.0

Introducing our Xtreme range of video capture cards
for capture display, record or streaming/broadcast



Electronic Modular Solutions Limited
www.ems-imaging.com

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XtremeDV-HD2+

Professional Audio and Video Capture Card Advanced Graphics Display Technology



DESCRIPTION

The XtremeDV-HD2+ has three independent video capture inputs - two supporting High Definition capture and a third supporting Standard Definition composite video. The XtremeDV-HD2+ also adds multiple channels of audio capture, which can be synchronised in software using time stamping with all video capture channels.

Both DVI High Definition inputs support HDMI, DVI, RGB and Analog Component (YPbPr) input via a DVI-I connector, at resolutions up to 4096 x 4096 pixels and supports 1080p (1920 x 1080) at 60 frames per second.

Standard Definition is input as composite video on a single RCA connector and can auto-detect between PAL, NTSC and SECAM formats.

The XtremeDV-HD2+ captures all three video channels simultaneously and triple buffers them into onboard storage for tear free video, alongside an audio stream that can be selected from one of the HDMI or one of the analog audio ports. This data can then be processed and copied using DMA transfers to the host system for display, storage or streaming.

FEATURES

- Triple channel PCI Express capture card
- 4 Lane PCIe bus, Net 1.6 GB/s total capture bandwidth
- Frame buffer memory - 2 x 256MB
- Direct DMA to graphics memory of third party graphics cards
- Balanced (XLR) and Unbalanced (RCA) audio capture from optional audio module (AM2)
- All standard XtremeDV range features
- EMS unified Windows driver supports XP and later operating systems and all EMS PCIe capture cards
- EMS Linux driver supports common Linux distributions (audio support*)

Two DVI-I Capture Channels:

- HDMI/DVI/RGB/YPbPr video capture
- HDMI embedded Audio Capture and streaming
- Low input to output capture latency

SD/Composite Capture Channel

- PAL, NTSC, SECAM up to 720 x 576 @16 Bit colour

VIDEO STREAMING

DirectShow drivers for WDM Streaming driver supports the following applications, to encode, record and stream video over networks or the Internet:

- Microsoft Media Encoder®
- VLC
- VirtualDub
- Any other DirectShow encoding software

For streaming applications, the VisionAV-SDI can be used with Windows Media Encoder to compress and stream captured video. To replay the video, use Windows® Media Player.

Any application compatible with Windows® DirectShow technology can use the XtremeDV-HD2+ due to its built-in WDM support.

AUDIO FEATURES

Input and output connection via the Audio Breakout cable which is supplied with the optional AM2 audio module attached to a 15 pin high density D-type connector on the Audio Module. The physical connections comprise of:

- Left and right balanced audio input on female XLR jacks
- Left and right unbalanced line inputs on female RCA connectors
- Left and right unbalanced line outputs on female RCA connectors for direct passthrough of selected analog input

Flexible input/output mixing capabilities.

Supports audio capture to the PCI Express bus at popular sample rates from 44.1 to 96 ksamples/s at 16 bits/sample.

Playback and mixing of HDMI embedded audio.

EMS XTREMEDV SOFTWARE

The XtremeDV-HD2+ is supplied with a powerful software application for configuring the format of the input sources and displaying the data.

Simply connect your video source into the card, run the XtremeDV-HD2+ application to automatically detect the video source format and display the captured video in a window on your desktop.

SOFTWARE CAPABILITIES

Timestamp support for streaming synchronisation

- Synchronisation of multiple inputs across multiple cards
- Synchronise systems using network clock synchronisation
- For edge blending and other applications

Flexible and configurable EDID Management

- Allows programming of custom EDID parameters for Capture cards



Low Input to Output Capture Latency

- DMA to third party graphics vendors back and front buffers via Direct3D
- Compatibility with AMD DirectGMA
- Compatibility with Nvidia GPUDirect

User Mode filter for source selection

- Enables cropping support in DirectShow on all inputs
- Supports Start and Stop trigger interface on all Vision inputs

EMS Unified XtremeDV Driver

- Multiple cards per system, 16 streams per input
- Frame sync and time stamping
- DirectShow interface
- The RGBEasy API for advanced audio and video control
- Fully integrated for use with EMS Wall Control software for video wall applications

MULTISTREAM

EMS's MultiStream feature is available on all EMS Capture cards and enables multiple independently formatted video streams to be setup in parallel.

Each stream can be formatted completely independently and individual selection of resolution, colour space, and cropping region can be set for each stream. This maximizes bandwidth utilisation of the capture card PCIe interface, and also simplifies development tasks for application developers who does not need to implement video stream reformatting separately

GRAPHICS CARD INTEGRATION

When the XtremeDV-HD2+ is used with a EMS graphics card, it is able to transfer the data directly to the graphics card thereby increasing performance and allowing both sources to be viewed at full frame rate.

When the video data is displayed on a non-EMS graphics card, the XtremeDV-HD2+ may still be able to boost performance by using the graphics card's DirectGMA interface to transfer directly to its off-screen memory, for example AMD DirectGMA and Nvidia GPUDirect. This is dependent upon the graphics card driver software capabilities.

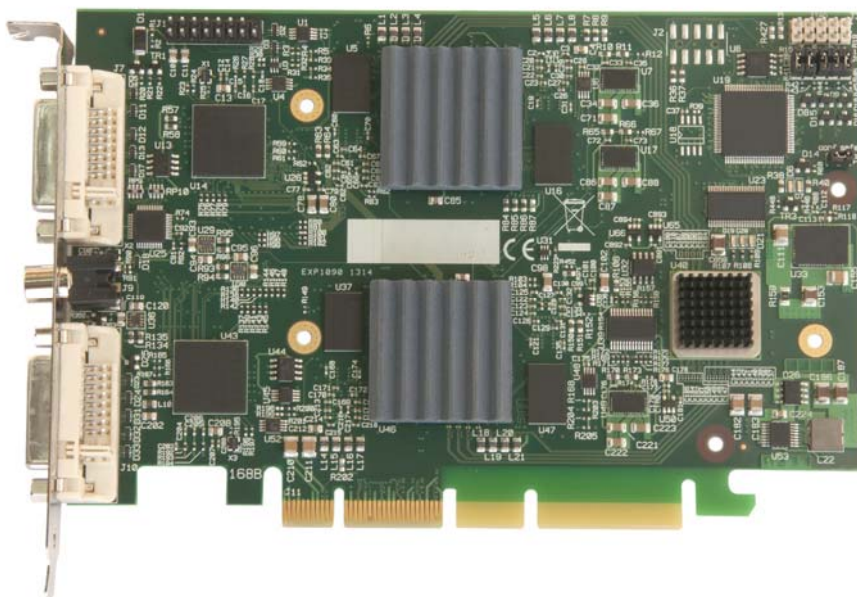
The XtremeDV-HD2+ is an ideal solution for applications that require both a real time camera feed, with synchronised audio, as well as high resolution image capture at full frame rates.

MODELS AVAILABLE

XtremeDV-HD2+	HDMI/DVI/RGB/YPbPr/SD/Composite Video Capture Card *
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** Adapters for other types of video connectors such as DVI to HDMI, DVI to VGA or DVI to Component are not included with the XtremeDV-HD2+ but are available from EMS, contact our sales team for details.*

All products are shipped with the latest software available, unless stated otherwise. Special requirements may be organised by contacting our Sales team.



SPECIFICATIONS

Board Format	PCI Express x4 half size plug-in card, 110mm x 170mm.
Connectors (main board)	2 x DVI-I , 1 x RCA (female)
HDMI Capture	<ul style="list-style-type: none"> Supports HDMI 1.3 to 225MHz (including deep colour modes). For HDCP support, contact the Sales Dept at EMS for more information HDMI audio can be selected as source for audio streaming. Incorporates TMDS equalizer to support up to 20m cables.
DVI Capture	Supports DVI 1.0 RGB 24bit capture to 165MHz. Incorporates TMDS equalizer to support up to 20m cables.
VGA /YPbPr Capture	Triple ADCs sampling up to 170MSPs. Full 4:4:4 sampling, 8 bits per colour. 5-wire, 4-wire or sync-on-green signal formats.
Composite Video Capture	CCIR601 sampling. PAL, NTSC, SECAM formats automatically detected
Audio Capture	Stereo Line-In/Stereo balanced inputs with programmable gain (+/-12dB) 16 bit sampling at 44.1/48/96kHz. Analog stereo line-out for direct passthrough of selected input at up to 64kHz sampling, sourced from Analog input or HDMI channel
Video Capture Memory	256MB high bandwidth frame buffer supports triple buffering of HD and SD video. Local storage of complex scatter-gather tables for DMA engine (eliminates read overhead)
Video Processing	Polyphase FIR scaling engine (7x5) for hardware downscaling and upscaling Colour space conversion allows captured data to be transferred in any format: <ul style="list-style-type: none"> RGB 16 bit (5-5-5, 5-6-5), 24 bit (8-8-8) or 32 bit (8-8-8-alpha) YUV 16 bit (4:2:2) Mono: 8bit
DMA Engine	Direct DMA to physical or virtual memory buffers with full scatter-gather support. DMA bandwidth : up to 800MB/s 16 independent DMA streams: <ul style="list-style-type: none"> Any mix of HD and SD sources, colour space, cropping and scaling parameters
Operating System Support	Windows XP, Windows Server 2003, Windows Vista, Windows Server 2008, Windows Server 2012, Windows 7, Windows 8 and Linux support (not audio*) See www.EMS.co.uk for updates.
Power Requirements	Max current at 12V – 1A Max current at 3.3V – 1A Thermal dissipation – 15.5W
Operating Temperature	0 to 35 °C (32 to 96°F)
Storage Temperature	-20 to 70 °C (-4 to 158°F)
Relative Humidity	5% to 90% non-condensing
Warranty	3 years

We are continuously developing the technology used within our product ranges delivering outstanding innovative solutions, therefore the specification may change from time to time.

* Denotes not yet available, contact sales for details



945 East 11th Avenue
Tampa, FL 33605
Phone: (813) 984-0125
Contact: Sales@pyramidimaging.com
<https://pyramidimaging.com>

