Matrox **Clarity UHD** »

Multi-format multi-input UHD video capture card with optional H.264 encoding

Matrox Clarity UHD at a glance

- **Capture from legacy to the latest video sources** through support for standard definition (SD) analog to ultra-high definition (UHD) digital formats
- **Connect and switch between different video sources** via Mini DisplayPort, HD-BNC, HDMI and custom analog DVI[1] connectivity
- **Handle multiple video sources** with the simultaneous capture of up to eight HD or two UHD streams[2]
- **Optimize video transmission and storage** through onboard multi-stream H.264 encoding
- **Minimize system footprint** by way of a single-slot PCIe card design
- **Simplify application development** using the Matrox Imaging Library (MIL) software development kit (SDK)
- **Deploy on a current platform of choice** with support for 64-bit Windows® 7/10 and Linux®

Multi-facet video capture with UHD clarity

Matrox Clarity UHD is a comprehensive video capture card supporting the full range of video formats from standard definition (SD) to high definition (HD) all the way to ultra-high definition (UHD). Mini DisplayPort, HD-BNC, HDMI and custom analog DVI[1] connectivity are provided to hook up to and switch between the different types of legacy and advanced video sources used in medical, surveillance and simulation training applications. System setup and management are further simplified with the board's automatic video source presence and format detection. Matrox Clarity UHD can simultaneously acquire multiple streams such as eight HD (1080p60) or two 4K UHD (2160p60) video streams and reliably transfer these off board using its efficient PCIe® 2.0 x8 host interface.

Video pre-processing and H.264 encoding

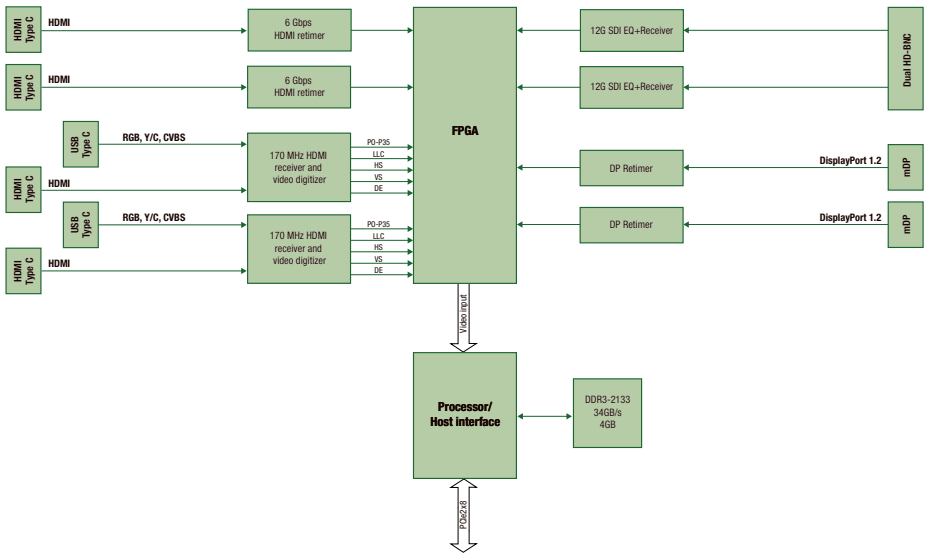
In addition to video capture, Matrox Clarity UHD can offload video pre-processing tasks such as scaling, compositing and de-interlacing from the host processor. An optional H.264 encoder supports a range of profiles, from the baseline one up to the high 4:4:4 predictive[4] one, for the broadest choice in encoded video quality for recording and distribution. Video pre-processing and H.264 encoding are designed to keep up with the board's multi-stream acquisition capability.

MATROX IMAGING

Application development with MIL

Complementing the Matrox Clarity UHD capture card is the MIL, which provides a comprehensive collection of software tools for developing imaging applications. MIL features interactive software and programming functions for image capture, processing, analysis, annotation, display and archiving. These tools are designed to enhance productivity, thereby reducing the time and effort required to bring your solution to market. The MIL API is not only intuitive and straightforward to use but it is also portable. It allows applications to be easily moved from one supported video interface or operating system to another, which provides platform flexibility and protects the original development investment.

Matrox Clarity UHD block diagram



The Matrox Imaging Advantage

Assured Quality & Longevity
We adhere to industry best practices in all hardware manufacturing and software development; product designs pay careful attention to component selection to secure consistent long-term availability. Matrox Imaging is able to meet Copy Exact and Revision Change Control procurement requirements in particular circumstances, backed by our dedicated team of QA specialists.

Trusted Industry Standards
Matrox Imaging champions industry standards in our design and production. We leverage these standards to deliver quality compatible products, protecting our customers' best interests by ensuring our hardware and software components work with as many third-party products as possible.

Comprehensive Customer Support
Our devoted front-line support and applications teams are on call to offer timely product installation, usage, and integration assistance, while the exclusive Matrox Imaging Vision Squad provides hands-on support, helping assess application feasibility, recommend best methods, and even prototype solutions.

Tailored Customer Training
Matrox Vision Academy comprises online and on-premises training for our vision software tools. On-premises intensive training courses are regularly held at Matrox headquarters, and can also be customized for onsite delivery. Vision Academy online training platform hosts a comprehensive set of on-demand videos available when and where needed.

Long-Standing Global Network
Matrox Imaging customers benefit from a global network of distributors who offer complementary products and support, and integrators who build customized vision systems. These relationships are built on years of mutual trust and span the globe, ensuring customer access to only the best assistance in the industry.

Specifications

Hardware

Host interface	
Interconnect	PCIe 2.0 x8
Camera/video interface	
Standard	Analog (RGB, Y/C and CVBS), single-link DVI (via HDMI), DisplayPort 1.2, HDMI and SDI (12G) video acquisition
Connectors	- two (2) USB Type C connectors for analog (via custom DVI-I adaptor cable) - two (2) Mini DisplayPort connectors - four (4) HDMI Type C connectors - two (2) HD-BNC connectors
Video acquisition paths	Up to eight (8) independent acquisition paths
Maximum acquisition bandwidth	Up to 4GB/s combined bandwidth
Memory	
Type	DDR3 SDRAM
Quantity	4 GB
Purpose	Image buffering and processing
Image processing capabilities	
On-board video pre-processing	Scaling and de-interlacing
On-board color space conversion	Output formats: 8-bit mono, 8- / 10-bit YUV 4:2:2, 8-bit YUV 4:4:4 planar, 8-bit YUV 4:2:0, 8-bit RGB planar, 8-bit BGR32, 10-bit BGRa
Encoding capabilities	
Compression standard	On-board H.264 encoding (Pre-licensed for MIL)
Profiles	Baseline to high 4:4:4 predictive profile (Up to 10 bits)
Physical	
Form factor	¾ length, full-height, PCIe add-in card
Product dimensions	213 x 111.5 x 18.7 mm (8.38 x 4.38 x 0.74 in)
Power consumption	45 W (typical)
Environmental	
Operating temperature	0°C to 50°C (32°F to 131°F)
Operating relative humidity	Up to 95% (non-condensing)

Specifications (cont.)

Software

Compatible software	Matrox Imaging Library (MIL) 10
Operating system support	Windows 7 (64-bit) Windows 10 (64-bit) Linux (64-bit)
Licensing provisions	MIL license fingerprint and storage

Ordering Information

Hardware

Part number	Description
CLA 4G HDSA	Matrox Clarity UHD PCIe 2.0 x8 video capture card with 4 GB of memory supporting HDMI, DisplayPort, SDI and analog acquisition.
CLA 4G HDSA E	Matrox Clarity UHD PCIe 2.0 x8 video capture card with 4 GB of memory supporting HDMI, DisplayPort, SDI and analog acquisition, and H.264 encoding.

Accessories

Part number	Description
CLA-CBL-USBDVI	Two (2) USB Type-C to DVI analog cable adaptors for the Matrox Clarity UHD

Software

Refer to MIL datasheet.

Notes:
1. Using optional USB Type C to DVI-I adaptor cable.
2 Or a maximum combined bandwidth of 4 GB/sec.
3 From supported formats.
4 Up to 10-bit.

About Matrox Imaging

Founded in 1976, Matrox is a privately held company based in Montreal, Canada. Imaging, Graphics, and Video divisions provide leading component-level solutions, leveraging the others' expertise and industry relations to provide innovative, timely products.

Matrox Imaging is an established and trusted supplier to top OEMs and integrators involved in machine vision, image analysis, and medical imaging industries. The components consist of smart cameras, vision controllers, I/O cards, and frame grabbers, all designed to provide optimum price-performance within a common software environment.

Corporate headquarters

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