Zebra **Clarity UHD** »

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

Overview

Multi-facet video capture with UHD clarity

Zebra® 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. Zebra 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, Zebra 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 baseline up to the high 4:4:4 predictive[3]—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.

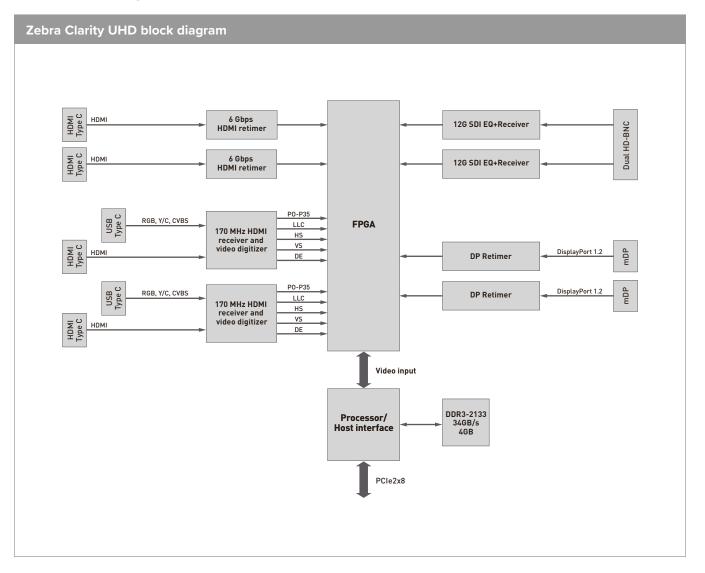| Zebra Clarity UHD at a glance |
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| **Capture from legacy to the latest video sources** through support for SD analog to UHD digital formats |
| **Connect and switch between different video sources** via Mini DisplayPort, HD-BNC, HDMI, and custom analog 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 Aurora Imaging Library, formerly 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® |

Software Environment

Application development with Aurora Imaging Library

Complementing the Zebra Clarity UHD capture card is Aurora Imaging Library, which provides a comprehensive collection of software tools for developing imaging applications. Aurora Imaging Library 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 solutions to market. The Aurora Imaging Library is not only intuitive and straightforward to use, but it is also portable. It allows applications to be moved from one supported video interface or operating system to another easily, providing platform flexibility and protecting the original development investment.

Connectivity

Zebra Clarity UHD block diagram

Specifications

Zebra Clarity UHD	
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 (12 G) 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 4 GB/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 Aurora Imaging Library)
Profiles	Baseline to high 4:4:4 predictive profile (Up to 10 bits)
Physical	
Form factor	¾-length, full-height, PCIe add-in card
Dimensions (L x W x H)	21.3 x 1.87 x 11.5 cm (8.38 x 0.74 x 4.38 in)
Power consumption	
	45 W (typical)
Environmental	
Operating temperature	0°C to 55°C (32°F to 131°F)
Relative humidity	Up to 95% (non-condensing)
Software	
Compatible software	Aurora Imaging Library
Operating system support	Windows 7 (64-bit)
	Windows 10 (64-bit)
	Linux (64-bit)
Licensing provisions	Aurora Imaging Library license fingerprint and storage

Ordering Information

Part number	Description
Hardware	
CLA 4G HDSA	Zebra 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	Zebra Clarity UHD PCIe 2.0 x8 video capture card with 4 GB of memory supporting HDMI, DisplayPort, SDI, and analog acquisition, plus H.264 encoding.
Software	
Refer to Aurora Imaging Library datasheet.	
Accessories	
CLA-CBL-USBDVI	Two (2) USB Type-C to DVI analog cable adaptors for the Zebra Clarity UHD.

Endnotes:
1. Using supplied USB Type C to DVI-I adaptor cable.
2. Up to a maximum combined bandwidth of 4 GB/sec.
3. Up to 10-bit.