Available
for deep learning
training

Zebra **4Sight XV6** ≫

Expandable entry-level vision controller

Overview

Ideal for intensive machine vision applications

Zebra® 4Sight XV6 is an expandable ruggedized computer designed for demanding imaging workloads. Its reliable platform is ideal for video acquisition, offering four full-height, half-length PCIe® expansion slots designed to host multiple cards, including frame grabbers operating at full performance. It can support up to three displays—VGA, DVI-D, HDMI™, and/or DisplayPort™—from the available outputs.

This powerful vision controller is the latest iteration of the Zebra 4Sight series, delivering desktop-level processing performance and ample expansion, all packaged in a small, sturdy casing. Powered by an eighth-generation Intel® Core™ processor, the Zebra 4Sight XV6 is capable of supporting intensive machine vision applications. Zebra 4Sight XV6 vision controllers are supported by two comprehensive software platforms: Aurora Design Assistant, formerly Matrox Design Assistant (DA), is a flowchart-based integrated development environment (IDE), whereas Aurora Imaging Library, formerly Matrox Imaging Library (MIL), is a software development kit (SDK) for more traditional programmers. Each software offers tools for video capture, analysis, classification, location, measurement, reading, verification, communication, and I/O operations so that engineers and technicians can quickly configure and deploy machine vision applications to Zebra 4Sight XV6 vision controllers.

Wide range of expansion options

Camera interfaces abound and Zebra 4Sight XV6 provides support for these either directly or with one or more expansion boards. The addition of Aurora Imaging frame grabber boards enables video capture from Camera Link, CoaXPress, DisplayPort, HDMI, and SDI sources including cameras.

Frame grabbers from the Zebra Radient eV-CL series provide Camera Link connectivity. Adding Zebra Rapixo CXP cards delivers up to four CoaXPress 2.0 connections, as well as FPGA processing offload. Use of a Zebra Clarity UHD card allows for capture of eight independent video streams.

Gigabit Ethernet connectivity with Power-over-Ethernet (PoE) support, perfect for interfacing to GigE Vision cameras, is available with Zebra Concord PoE frame grabbers and Zebra Indio I/O cards. Zebra Concord PoE can also provide optional Trigger-over-Ethernet (ToE) capability while the Zebra Indio can alternatively deliver hardware-assisted PROFINET® communication and provides real-time I/O capabilities. Finally, an NVIDIA® GPU can be used to accelerate deep learning training.

Solid construction

The Zebra 4Sight XV6 fits readily into tough industrial environments, including warehouses, plants, and manufacturing or fabrication facilities. A full steel chassis protects the system from rough conditions; efficient cooling ensures steady functioning for consistent maximum performance. Serviceable air filters keep the interior of the unit free of foreign particles.

Zebra 4Sight XV6 at a glance

Tackle demanding imaging applications using an eighth-generation Intel Core processor

Capture directly from GigE Vision® and USB3 Vision® cameras

Broaden support for Camera Link®, CoaXPress®, DisplayPort, HDMI, and SDI video interfaces using Zebra frame grabbers

Customize I/O capabilities through four PCIe slots accepting full-height, half-length cards

Install in space-limited industrial environments given its small footprint and rugged design

Streamline application development using the Aurora Design Assistant flowchart-based IDE or the Aurora Imaging Library SDK

Tackle machine vision applications with utmost confidence using field-proven tools for analyzing, locating, classifying, measuring, reading, and verifying

Leverage machine learning including deep learning to categorize image content

Ready for deep learning training with suitably equipped and configured model

Software Environment

Microsoft Windows 10 IoT Enterprise

Zebra 4Sight XV6 comes pre-installed with Microsoft® Windows® 10 IoT Enterprise 2019 (64-bit), which provides the familiarity, performance, and reliability of Windows 10, including multi-language support.

Field-proven application development software

Zebra 4Sight XV6 is supported by Aurora Imaging Library[1] software—a comprehensive SDK with a 25-year history of reliable performance. This toolkit features interactive software and programming functions for image capture, processing, analysis, annotation, display, and archiving operations, with the accuracy and robustness needed to tackle the most demanding machine vision applications. Refer to the Aurora Imaging Library datasheet for more information.

Zebra 4Sight XV6 is also available with, and licensed for, Aurora Design Assistant[1] software, a versatile and extendable IDE. Vision applications are created by constructing an intuitive

flowchart instead of writing traditional programming code. A custom, web-based operator interface to the application is created through an integrated HTML visual editor. Refer to the Aurora Design Assistant datasheet for more information.

Ready for deep learning training

Zebra 4Sight XV6 is also available equipped and configured for deep learning training. Additions include more memory, separate storage for software and training dataset, and a suitable professional NVIDIA GPU card, all to accelerate the training process. The specific model is pre-loaded with the Aurora Imaging Library software, including the Aurora Imaging Library CoPilot interactive environment, and comes ready-licensed for using the Aurora Imaging Library Classification package. Refer to the Aurora Imaging Library datasheet for more information.

Connectivity

Zebra 4Sight XV6 block diagram
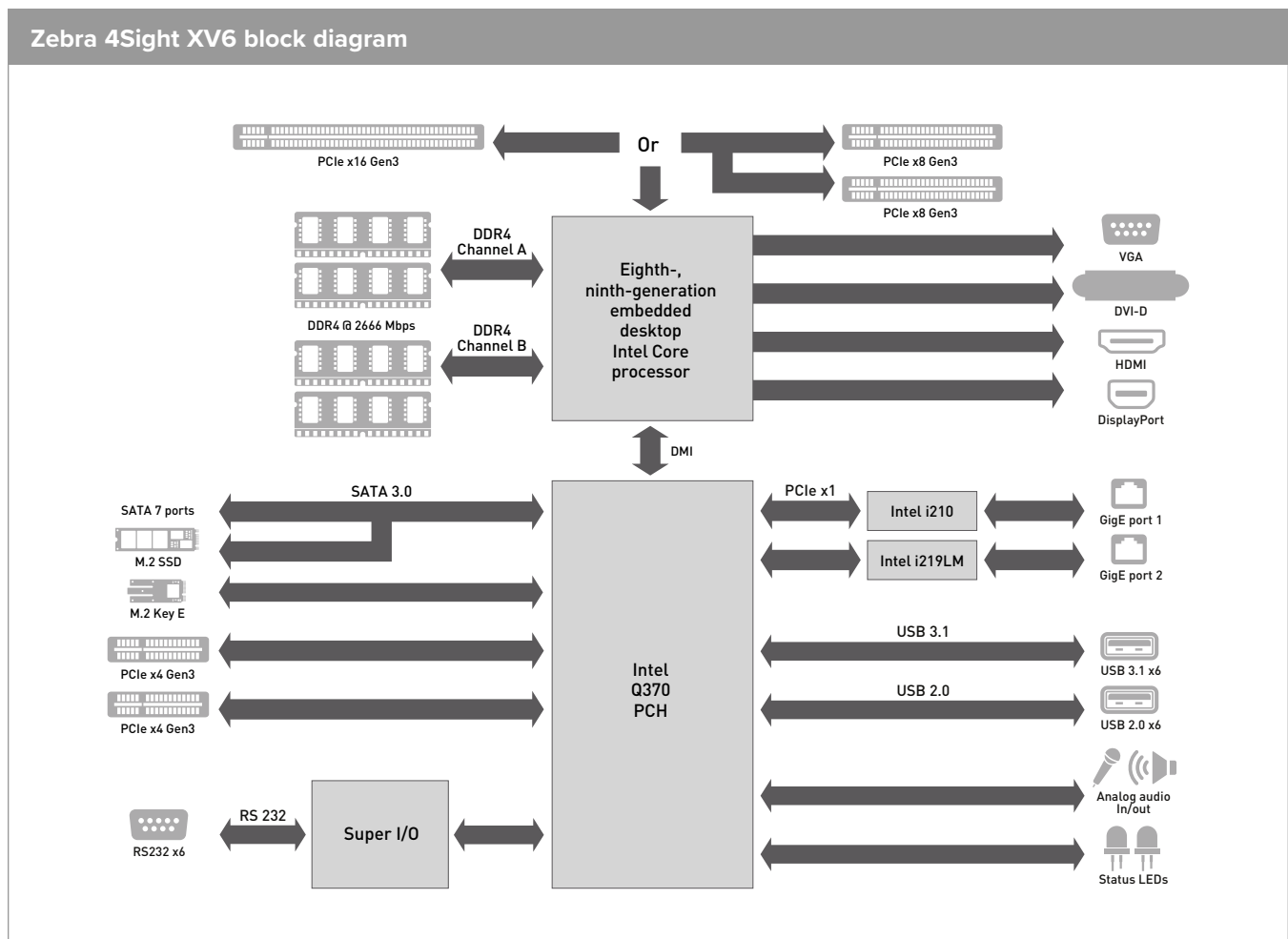
Connectivity (cont.)

Zebra 4Sight XV6 front and back views

1. Fan filter door	5. USB 2.0 ports	9. VGA output	13. Gigabit Ethernet ports	17. Microphone in
2. Power switch	6. Power input	10. DVI output	14. USB 3.1 ports	18. PCIe slots
3. HDD LED	7. Serial port	11. DisplayPort output	15. Audio in	
4. Power-on LED	8. PS/2 port	12. HDMI output	16. Audio out	

Connectivity (cont.)

Zebra 4Sight XV6 chassis

15.5 cm / 6.10 in

Front

26.2 cm / 10.32 in

30.4 cm / 11.97 in

Underside

Back
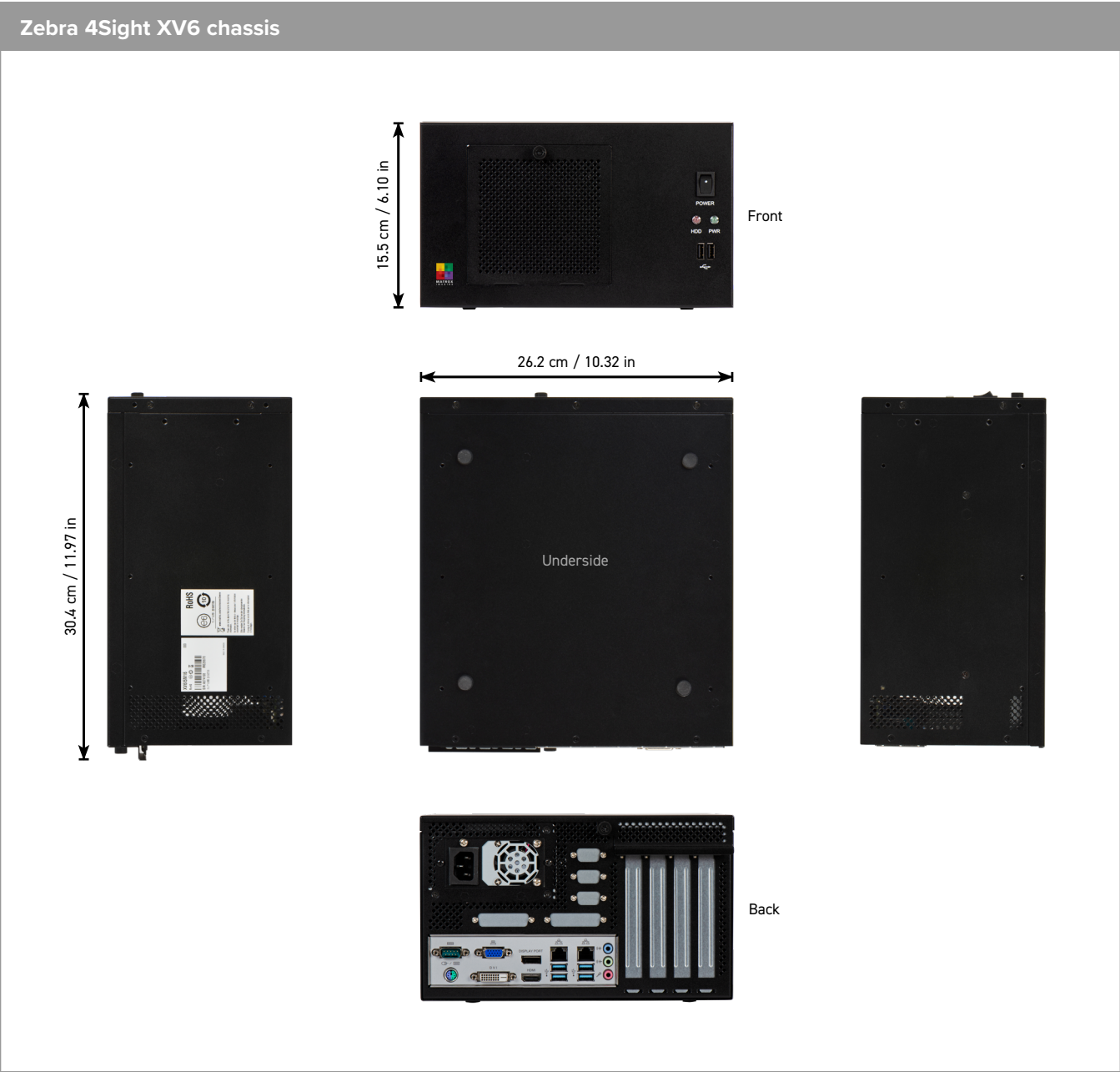
Specifications

Zebra 4Sight XV6
Motherboard
Micro-ATX form factor (24.4 x 24.4 cm or 9.6 x 9.6 in)
Intel Q370 Platform Controller Hub (PCH)
Four (4) 288-pin DDR4 long-DIMM sockets
Up to 64 GB DDR4-2666 SDRAM
Triple display
One (1) VGA output
Up to 1920x1200 @ 60 Hz
One (1) DVI-D output
Up to 4096x2304 @ 60 Hz
One (1) HDMI 1.4 output
Up to 4096x2160 @ 24 Hz
One (1) DisplayPort 1.2 output
Up to 4096x2304 @ 60 Hz
Two (2) Gigabit Ethernet ports (10/100/1,000)
One (1) Intel Ethernet Connection I210
One (1) Intel Ethernet Connection I219-LM
Twelve (12) USB ports
Four (4) USB 3.1 ports
Two (2) USB 2.0 ports
Two (2) USB 3.1 ports (internal)
Four (4) USB 2.0 ports (internal)
Eight (8) SATA3 ports (one shared with M.2 Key M)
Support for RAID 0, 1, 5, and 10
One (1) mini-PCIe (full/half) connector
One (1) M.2 Key M (2242/2260/2280) connector (used by 128 GB SSD)
One (1) M.2 Key E (2230) connector
Stereo line-in
Stereo line-out
Mic-in
Six (6) serial ports
One (1) RS-232/RS-422/RS-485 port
Five (5) RS-232 ports (internal)
One (1) PS/2 combo connector
Four (4) PCIe Gen3 slots
Slot 1: PCIe x16 (x8 if slot 3 used in x8)
Slot 2: PCIe x4
Slot 3: PCIe x8 (mechanically x16)
Slot 4: PCIe x4
CPU
Intel Core i5-8500 processor
Six (6) cores
3.0–4.1 GHz
9 MB cache
Intel UHD Graphics 630 (350 MHz–1.1 GHz)

Specifications (cont.)

Zebra 4Sight XV6
Memory Options
16 GB DDR4-2666
32 GB DDR4-2666
Storage Options
128 GB M.2 2280 SATA3 SSD
256 GB 2.5 in SATA MLC SSD + 256 GB M.2 2280 NVME SSD
Chassis
Dimensions (L x W x H): 26.2 x 29.2 x 15.5 cm (10.3 x 11.5 x 6.1 in)
Heavy-duty steel
Horizontal or vertical mounting
120 mm 138 CFM cooling fan
Four (4) PCIe full-height, half-length expansion slots
Two (2) USB ports in the front
Power switch
Power and HDD notification LEDs
Mounting
Horizontal or vertical
Power Supply
Integrated 400 W power supply
AC input
100–240 VAC
50–60 Hz
80 Plus Gold rated
Power-factor corrected
Supplemental power connectors
Two (2) SATA power (12 VDC & 5 VDC)
Two (2) 6-pin + 2-pin PCIe power
Certifications
FCC Class A
CE Class A
RoHS-compliant
Environmental
Operating temperature: 10°C to 45°C (50°F to 113°F)
Storage temperature: -40°C to 85°C (-40°F to 185°F)
Relative humidity: Up to 90% (non-condensing)
Software
Pre-loaded with Microsoft Windows 10 IoT Enterprise 2019 (64-bit)
Pre-loaded with Aurora Imaging Library run-time and Aurora Design Assistant run-time environments
Optionally pre-loaded with Aurora Imaging Library development environment including Aurora Imaging Library CoPilot interactive environment
Optionally pre-loaded with Aurora Design Assistant development and run-time environments

Ordering Information

Part number	Description
Hardware	
XV6I5M16	Zebra 4Sight XV6 integrated unit with Intel Core i5-8500, 16 GB DDR4 RAM, 128 GB M.2 MLC SSD, and Microsoft Windows 10 IoT Enterprise (64-bit). Pre-loaded with Aurora Imaging Library and Aurora Design Assistant run-time environments. Partially licensed for Aurora Design Assistant and Aurora Imaging Library. Note: The use of this product is governed by Microsoft Software License Terms, among others.
XV6I5M16DA	Zebra 4Sight XV6 integrated unit with Intel Core i5-8500, 16 GB DDR4 RAM, 128 GB M.2 MLC SSD, and Microsoft Windows 10 IoT Enterprise (64-bit). Pre-loaded with Aurora Design Assistant design-time and run-time environments. Partially licensed for Aurora Design Assistant and Aurora Imaging Library. Note: The use of this product is governed by Microsoft Software License Terms, among others.
XV6I5M16DA+	Zebra 4Sight XV6 integrated unit with Intel Core i5-8500, 16 GB DDR4 RAM, 128 GB M.2 MLC SSD, and Microsoft Windows 10 IoT Enterprise (64-bit). Pre-loaded with Aurora Design Assistant design-time and run-time environments. Fully licensed for Aurora Design Assistant and Aurora Imaging Library. Note: The use of this product is governed by Microsoft Software License Terms, among others.
XV6I5M32CT	Zebra 4Sight XV6 integrated unit for deep learning training with Intel Core i5-8500, 32 GB DDR4 RAM, 256 GB SATA SSD for software, 256 GB NVME SSD for training dataset, NVIDIA Quadro RTX 4000 GPU, and Microsoft Windows 10 IoT Enterprise (64-bit). Pre-loaded with Aurora Imaging Library development environment. Partially licensed for Aurora Design Assistant and Aurora Imaging Library. Note: The use of this product is governed by Microsoft Software License Terms, among others.
Software	
Inlcuced with XV6I5M16 and XV6I5M32CT	Licensed for the Aurora Design Assistant / Aurora Imaging Library Interface, Distributed Aurora Imaging Library, and Classification (XV6I5M32CT only) run-time packages. See Aurora Design Assistant and Aurora Imaging Library datasheets for more information.
Included with XV615M16DA and XV615M16DA+	Separate installation media with the Aurora Design Assistant IDE and on-line documentation as well as a Aurora Design Assistant Maintenance registration number. Pre-loaded with the Aurora Design Assistant design-time and run-time environment. Allow the Aurora Design Assistant IDE to run when it is connected to them. XV615M16DA is licensed for the Aurora Design Assistant / Aurora Imaging Library Machine Vision, Identification, Image Compression, Interface, Distributed Aurora Imaging Library, Metrology, Color Analysis, and Industrial and Robot Communications run-time packages. The String Reader and SureDotOCR®, Geometric Model Finder, Registration, 3D Calibration and Supplemental and Classification packages need to be licensed separately. See Aurora Design Assistant and Aurora Imaging Library datasheets for more information. XV615M16DA+ is licensed for all Aurora Design Assistant and Aurora Imaging Library run-time packages.

Endnotes:
1. The software may be protected by one or more patents; see www.matrox.com/patents for more information.