DEEPVIEW

X400 VISION PROCESSOR

The X400 Vision Processor is an industrial deep learning computer capable of advanced neural network image detection. It integrates an NVIDIA GPU and 8GB of DDR4 RAM, enabling the execution of advanced deep learning algorithms for real-time image analysis and pass/fail inspections. The compact and fanless design ensures convenient and discrete placement on any DIN rail system.

The X400 Vision Processor natively supports GigE Cameras and USB Cameras from Allied Vision, Basler, IDS, and OpenCV. It is accessible via a browser interface, simplifying setup and use. The X400 Server can run up to 8 cameras at 150ms cycle time per camera.



Features

- **AI-Powered Processing**
  Embedded NVIDIA™ GPU and CPU for real-time image analysis.
- **Built-in Deep Learning Training App**
  Remotely connect to, and train with, the X400 Server.
- **Industrial-Grade Design**
  Fanless, rugged construction ideal for industrial environments.
- **Large Storage Capacity**
  128GB storage for extensive image history.
- **Simple Connectivity**
  Features GigE and USB camera integration.

Technical Specs

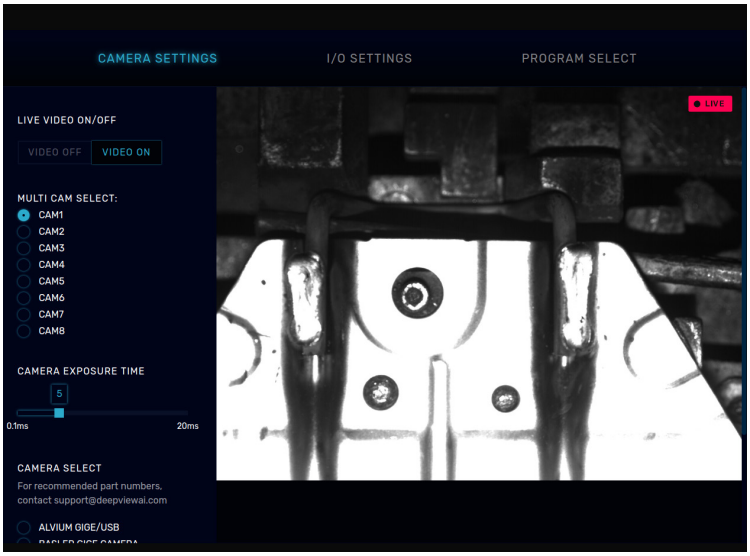
System Specs

Memory	8 GB 128-bit LPDDR4x
Interfaces	1x Gigabit Ethernet 2x USB 3.1 Type-A
24V GPIO	3x Digital Input 2x Digital Output
Network Capabilities	Remote login with VPN
Power Supply	24 VDC @ 1.5A (40 W max)
Mass Storage	128 GB SSD
Operating Systems	Ubuntu Linux 22.04

Physical

Operating Temperature	-25°C to 65°C
Size	110 mm x 130 mm x 60 mm
Weight	760 g

Integrated Vision System



The X2000 MultiCam Server is designed to support multi-camera configurations with advanced software that allows flexible and efficient management of up to 8 cameras. The server excels in environments where multiple cameras are necessary, such as for industrial inspection across multiple production lines or for monitoring complex products from various angles.

It can be accessed by opening any web browser and navigating to **192.168.2.45.**

Seamless Browser-Based Operation

The interface is designed for easy access via standard web browsers, eliminating the need for specialized software. The streamlined interface supports intuitive setup and control of multi-camera systems, making it easy to monitor and configure all connected cameras from a single location.

Advanced Multi-Camera Functionality

The X2000 MultiCam Server's software allows for complete flexibility in how multiple cameras are used, supporting both synchronous and independent triggering options:

Trigger All or Trigger Independently

Choose between triggering all cameras simultaneously or operating each camera on independent triggers, offering control over how images are captured based on specific inspection requirements.

Run Same or Different Jobs

The system supports running the same job across multiple cameras or configuring each camera to perform different tasks. This flexibility is ideal for complex setups requiring multiple inspection points or varied operations across a production line.

Centralized Setup and Management

All camera settings, jobs, and production monitoring are controlled through a single interface. This eliminates the need to configure each camera independently, significantly reducing the setup time and potential for errors when managing multiple lines or inspection points. Once a job is updated, it is propagated to all relevant cameras, ensuring consistency across the system.

Simplified Neural Network Training

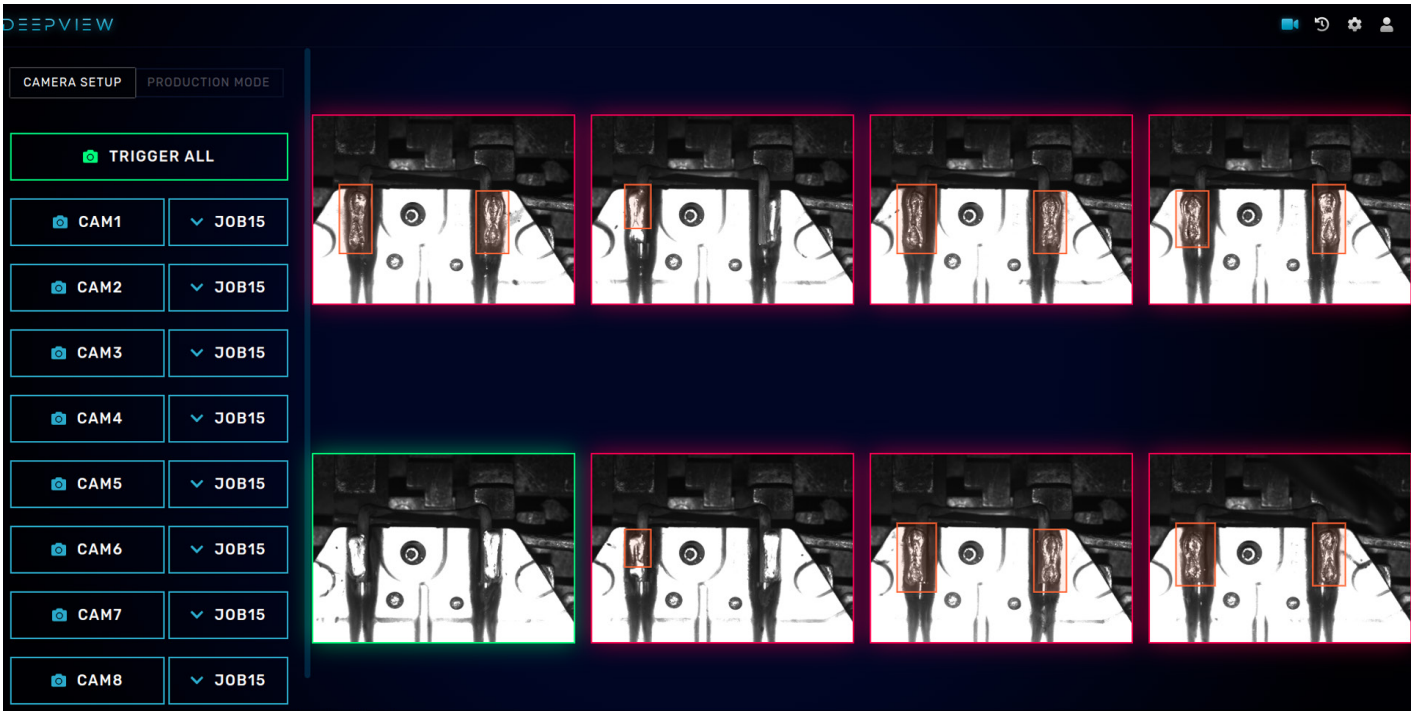
The Training module interface allows users to organize, label, and train neural networks with ease. It features tools for defect marking and categorization based on pass/fail criteria. Additionally, images from production or camera history can be seamlessly added back into the training module, ensuring continuous optimization of AI algorithms.

Real-Time Monitoring and Predictive Analysis

The system provides real-time visualization of camera feeds, including an integrated production view for multi-camera setups. Predictive analysis tools display confidence ratings, allowing operators to monitor inspection accuracy and system performance at a glance. The software offers full control over camera settings such as exposure and I/O configurations, enabling fine-tuned adjustments for each camera in the system.

Data Management and Historical Analysis

The platform offers comprehensive data management, including the ability to review historical image data, compare results across multiple production runs, and generate detailed reports. The historical analysis functionality is crucial for identifying trends and optimizing production processes.



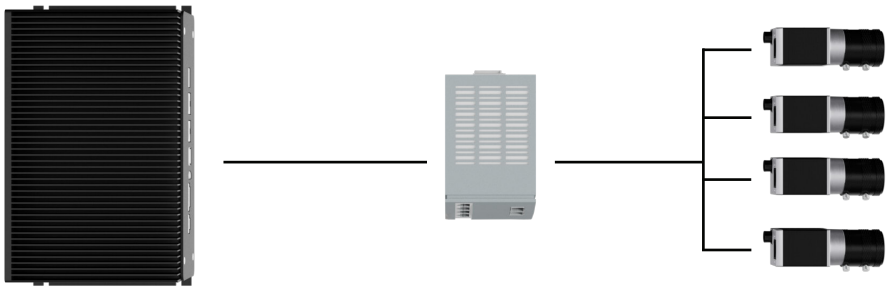
Camera Configurations

The X2000 MultiCam Server can be used natively with up to two USB cameras - or in conjunction with an ethernet switch to support up to eight GigE cameras.

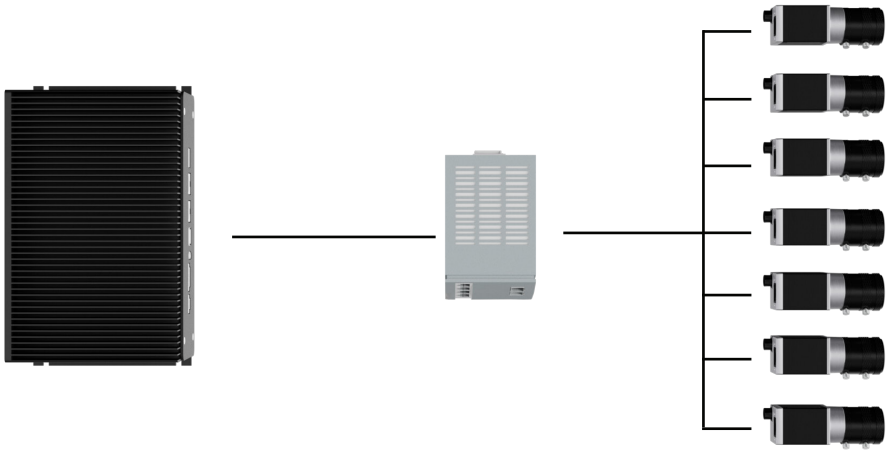
Two USB Cameras up to 25 MP



Four GigE Cameras up to 5 MP



Eight GigE Cameras up to 5 MP



Mounting

The X400 Server can be mounted to standard DIN rails.



Back Panel

Run up to 8 GigE Cameras using a PoE Switch (diagram on Page 5)



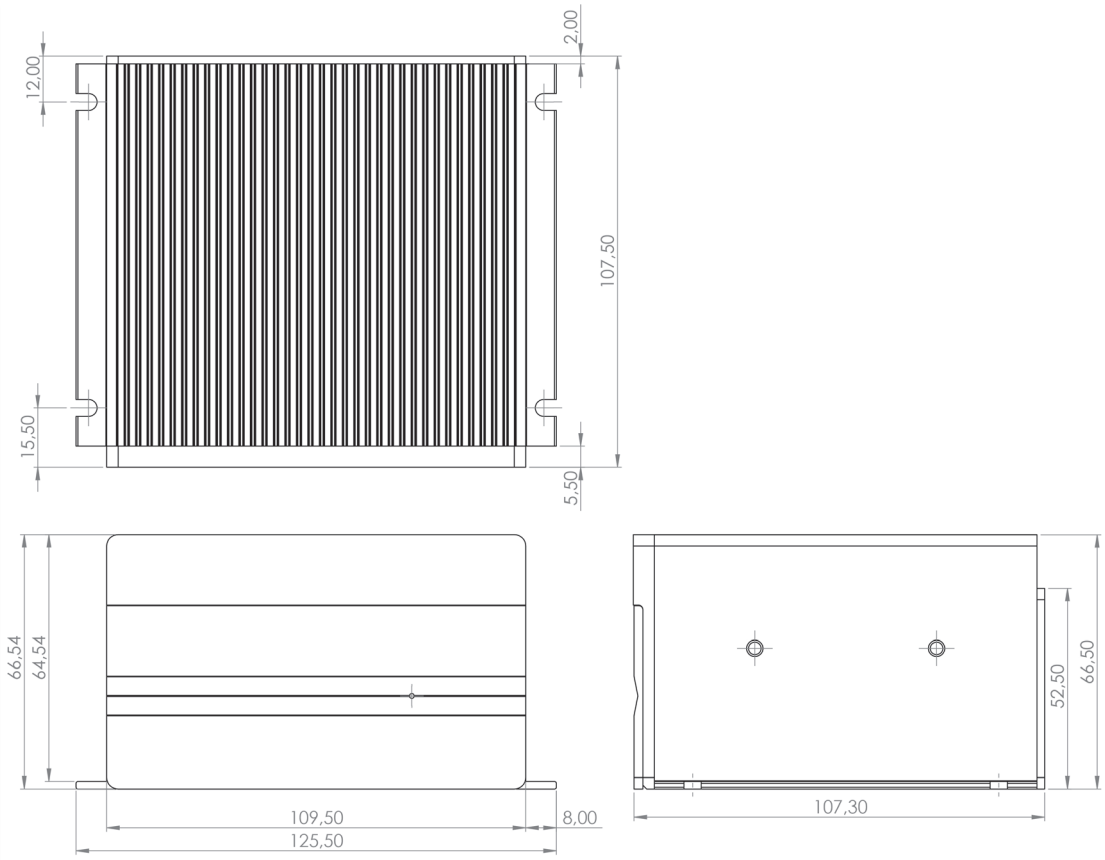
Accessories

Additional GigE / USB camera support available on request. Compatible with JAI, Allied Vision, and Basler GigE cameras as well as AB Logix PLCs, 24V I/O, EtherNet/IP PLCs, and Profinet (in development).

	Part Number	Description
	GO-5101C-PGE GO-5101M-PGE JAI	Color camera (c) Monochrome camera (m) 5.1 MP GigE (PoE)
	Alvium G1-500c Alvium G1-500m Allied Vision	Color camera (c) Monochrome camera (m) 5.0 MP GigE
	Alvium G1-158c Alvium G1-158 Allied Vision	Color camera (c) Monochrome camera (m) 1.6 MP GigE
	C Series Edmund Optics	C-Mount lens family Availalbe in 3.5, 4.5, 6.0, 8.5, 12, 16, 25, 35, 50, 75, 100 mm focal lengths
	FL SWITCH 1100T-8POE-2SFP Phoenix Contact	Ethernet Switch 1 Gigabit, PoE
	12310-02 Allied Vision	Camera mount Allied Vision cameras
	LSR Series Smart Vision Lights	LED bar light Best for working distances between 500 - 2000 mm
	JWL150-MD Smart Vision Lights	Mountable LED ring light Best for working distances between 500 - 2000 mm

Technical Drawings

Dimensions are in mm.



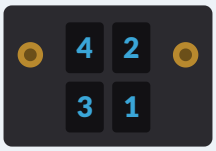
Power and IO Connectors

Connector side of the X400. Mating terminal blocks for the DC IN and IO connectors are included.



IO	14-pin terminal: CAN bus + 24V digital I/O
HDMI	1x HDMI 2.0 video output
LAN	1x 1 Gigabit Ethernet (RJ45)
USB	2x USB 3.1 Type-A (1.5 A per port)
DC IN	Power input, 9-28 VDC (24 VDC nominal)

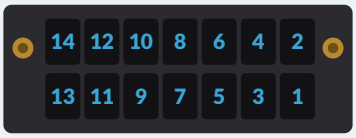
Power Connector (DC IN)



Mating Connector	Phoenix Contact 1708595 (included)
Input Voltage	+9 V min, +28 V max (24 VDC nominal)
Power Draw	1.5 A @ 24 V (40 W max)

Pin	Description
1	Positive (+V)
2	Negative (GND)
3	Positive (+V)
4	Negative (GND)

I/O Terminal Connector



Mating Connector	Phoenix Contact 1790344 (DFMC 1,5/7-STF-3,5, included)

Pin	Description	I/O Type
1	Reserved	—
2	Reserved	—
3	Reserved	—
4	Reserved	—
5	Reserved	—
6	Reserved	—
7	CAN_H	I/O
8	CAN_L	I/O
9	GND	Power
10	GND	Power
11	DIGITAL_OUT1 (24 V NPN, sinking)	Output
12	DIGITAL_IN1	Input
13	DIGITAL_OUT0 (24 V NPN, sinking)	Output
14	DIGITAL_IN0	Input