

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**
 1TB 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 |
| Mass Storage | 1 TB SSD |
| Operating Systems | Ubuntu Linux 20.04 |

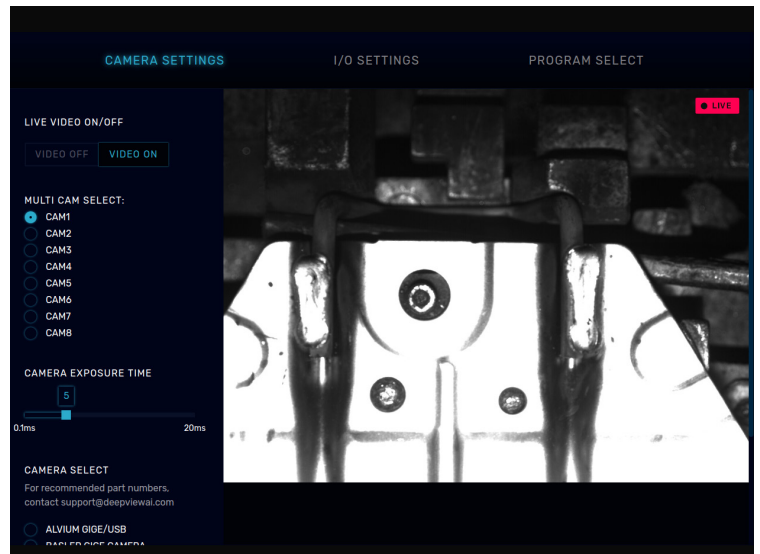
Physical

| | |
|-----------------------|-------------------------|
| 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

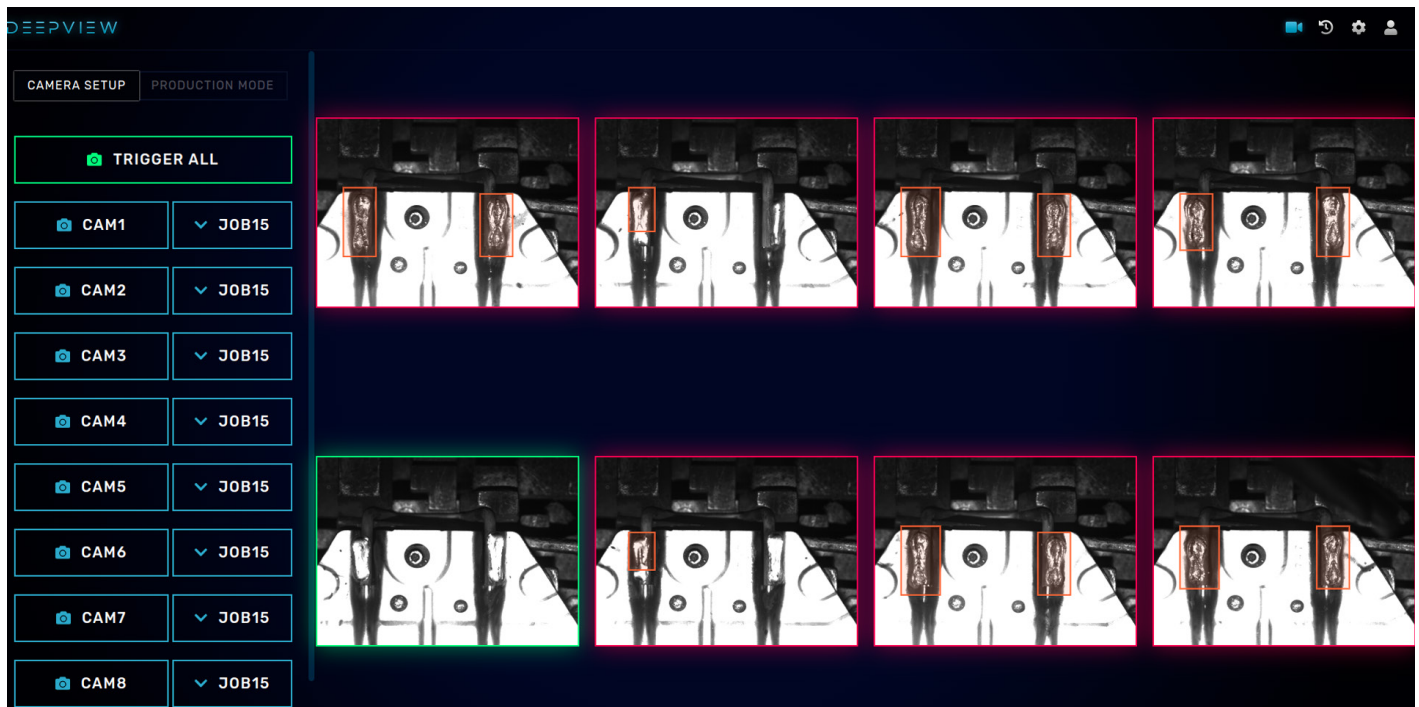
The Training module interface allows users to organize, label, and train neural networks with ease. It features tools for defect marking and categorization based on pass/fail criteria. Additionally, images from production or camera history can be seamlessly added back into the training module, ensuring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



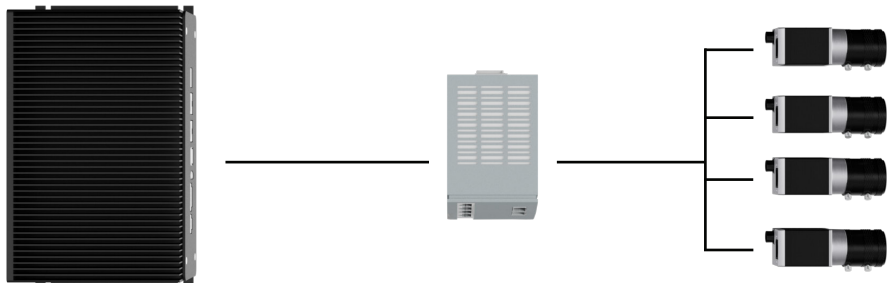
Camera Configurations

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.

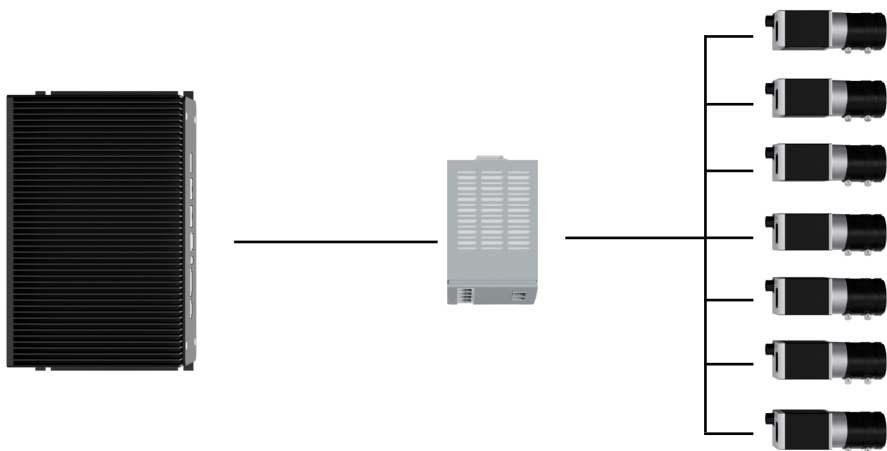
Two USB Cameras up to 25 MP



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 Basler and IDS cameras as well as AB Logix PLCs, 24V I/O, EtherNet/IP PLCs, and Profinet (in development).

| | Part Number | Description |
|---|---|--|
|  | Alvium 1800 U-2460c Alvium 1800 U-2460m Allied Vision | Color camera (c) Monochrome camera (m) 24.6 MP USB 3.0 |
|  | Alvium G1-507c Alvium G1-507m 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.

