DEEPVIEW

# X2000 MULTICAM SERVER

The X2000 MultiCam Server is a powerful industrial PC, capable of advanced neural network image detection. It integrates an NVIDIA GPU and 32GB of DDR5 RAM, enabling the execution of advanced deep learning algorithms for real-time image analysis and pass/fail inspections on multiple cameras at once.

The X2000 MultiCam Server natively supports Allied Vision USB and GigE Cameras, with additional USB and GigE camera support available on request. It is accessible via a browser interface, simplifying setup and use. The X2000 MultiCam Server can be modified to support 2-8 cameras, ranging from 1.6 MP to 25 MP, depending on the use case and camera configuration.

## 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 X2000 MultiCam Server.
- **Industrial-Grade Design**
  Fanless, rugged construction ideal for industrial environments.
- **Large Storage Capacity**
  256GB storage for extensive image history.
- **Simple Connectivity**
  Features GigE, SFP+ and USB camera integration.

## Technical Specs

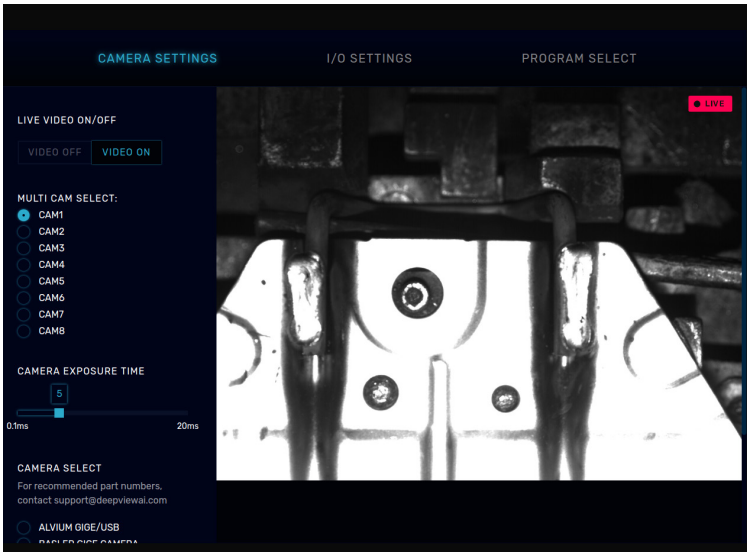
### System Specs

| | |
|---|---|
| Memory | 32 GB 256-bit LPDDR5x |
| Interfaces | 2x Gigabit Ethernet<br>2x USB 3.1 Type-A<br>1x 10G (SFP+ Based)<br>1x CAN Bus |
| Network Capabilities | Remote login with VPN |
| Power Supply | 24 VDC @ 5A<br>(60 W max power draw) |
| Mass Storage | 256 GB SSD |
| Operating Systems | Ubuntu Linux 22.04 |

### Physical

| | |
|---|---|
| Operating Temperature | -25°C to 65°C |
| Size | 105 mm x 210 mm x 82 mm |
| Weight | TBD |

# 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

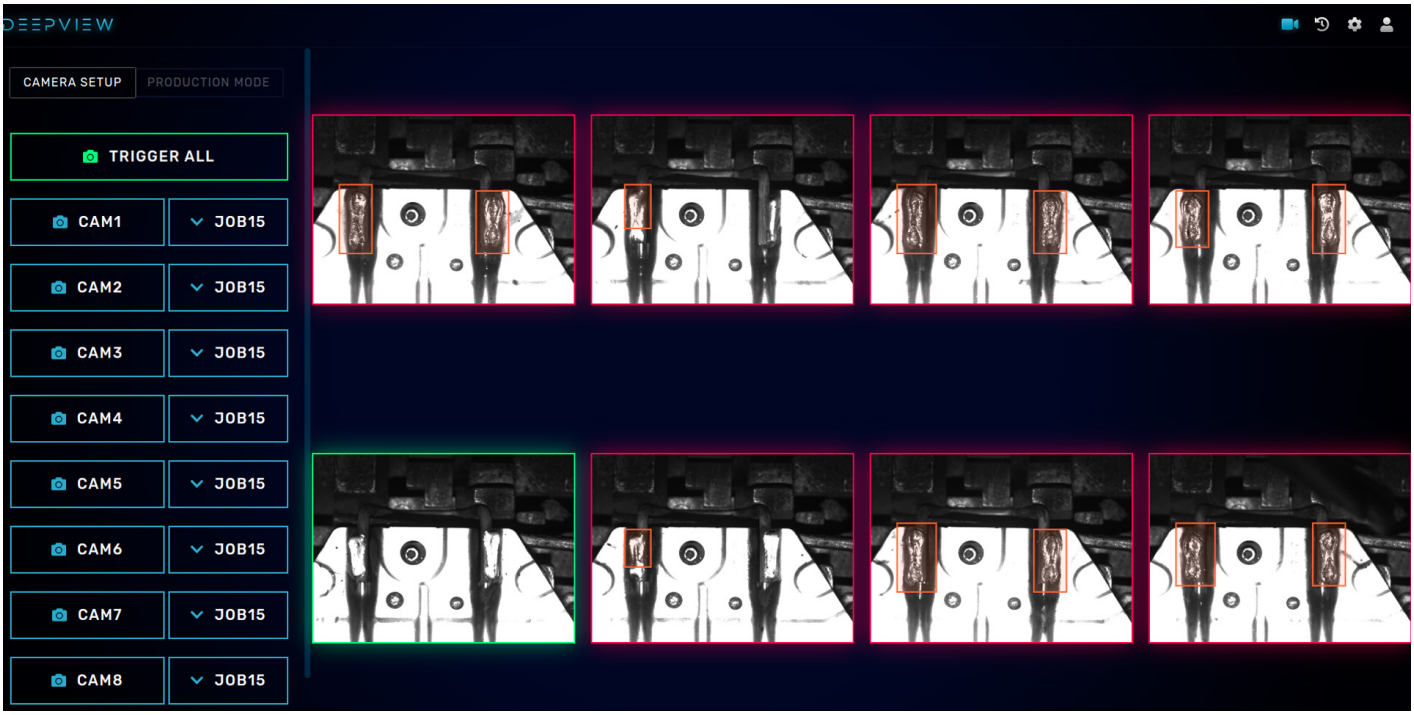
The Training module interface allows users to organize, label, and train neural networks with ease. It features tools for defect marking and categorization based on pass/fail criteria. Additionally, images from production or camera history can be seamlessly added back into the training module, ensuring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



# Mounting

The X2000 MultiCam Server can be mounted via M4.5 tabs on the sides.

# Back Panel

An ethernet switch can be used to extend the capablities of the X2000 MultiCam server to accept up to 8 cameras.[1]

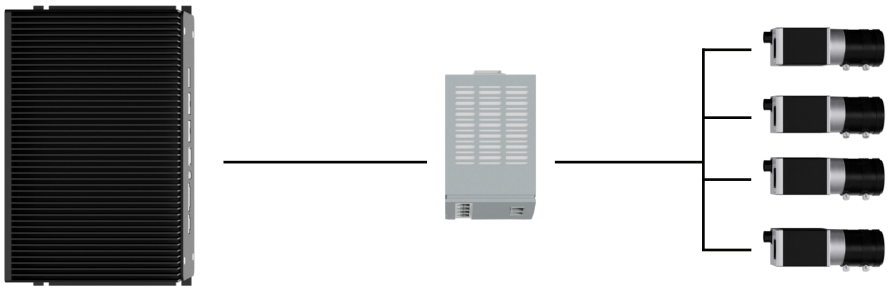
[1]See page 5 for accepted camera configurations

# Camera Configurations

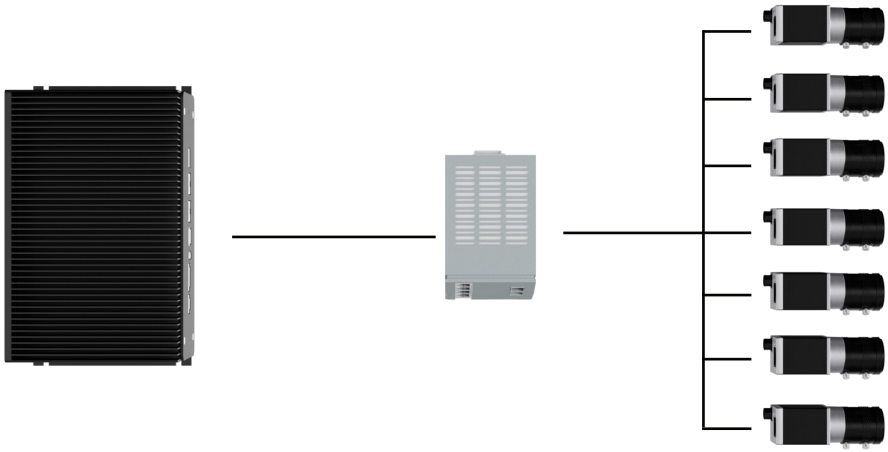
The X2000 MultiCam Server can be used natively with up to two USB cameras - or in conjunction with an ethernet switch to support up to eight GigE cameras.

Two USB Cameras up to 25 MP

Four GigE Cameras up to 5 MP

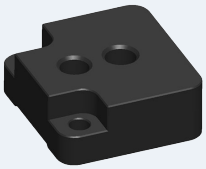


Eight GigE Cameras up to 5 MP



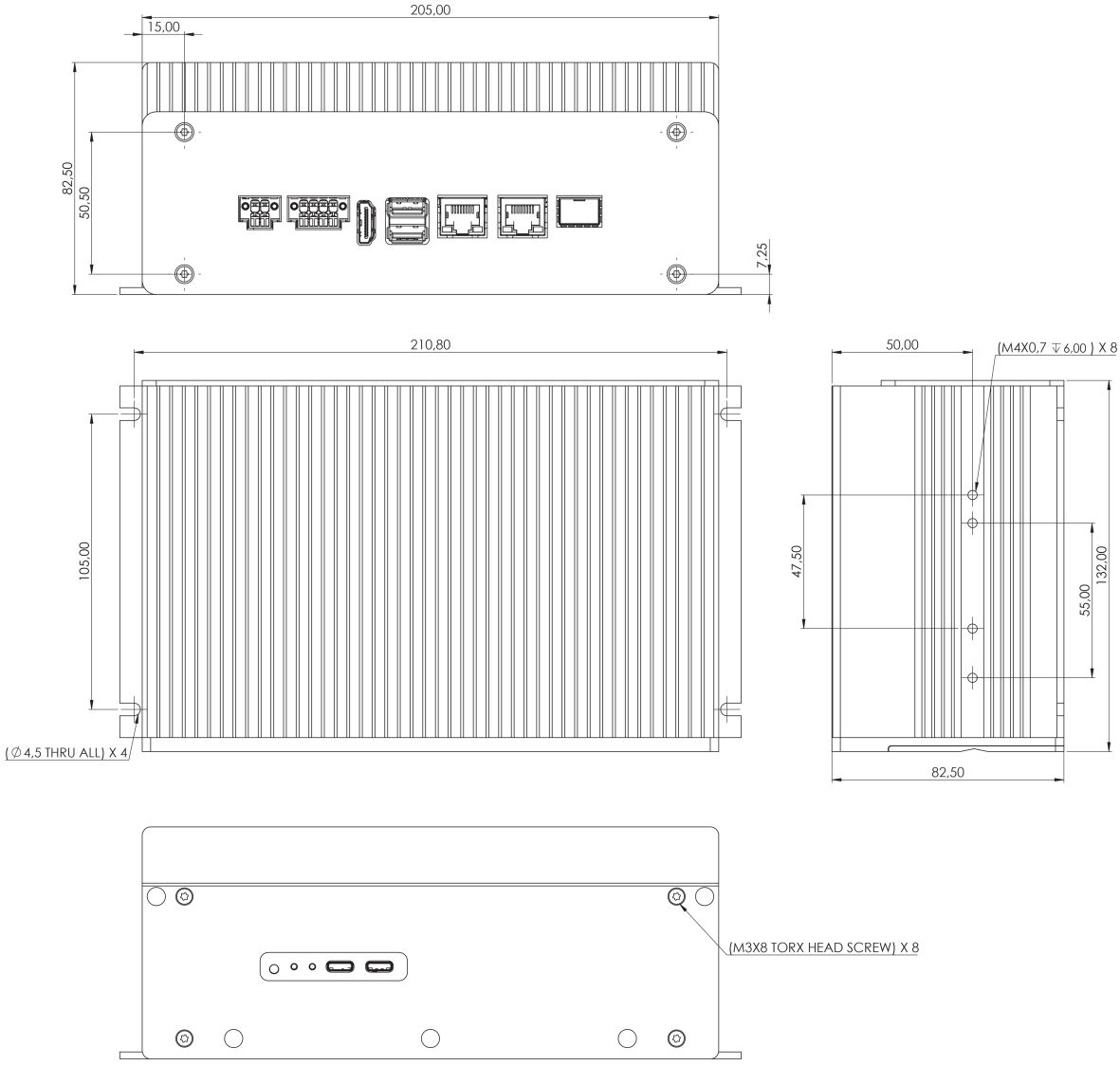
# Accessories

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<br>GO-5101M-PGE<br>JAI | Color camera (c)<br>Monochrome camera (m)<br>5.1 MP GigE (PoE) |
| | Alvium G1-500c<br>Alvium G1-500m<br>Allied Vision | Color camera (c)<br>Monochrome camera (m)<br>5.0 MP GigE |
| | Alvium G1-158c<br>Alvium G1-158<br>Allied Vision | Color camera (c)<br>Monochrome camera (m)<br>1.6 MP GigE |
| | FL SWITCH 1100T-8POE-2SFP<br>Phoenix Contact | Ethernet Switch<br>1 Gigabit, PoE |
| | M117 Series<br>Tamron | C-Mount lens family<br>Available in 6, 8, 12, 16, 25, 30, 50, and 75 mm focal lengths |
| | C Series<br>Edmund Optics | C-Mount lens family<br>Availalbe in 3.5, 4.5, 6.0, 8.5, 12, 16, 25, 35, 50, 75, 100 mm focal lengths |
|  | 12310-02<br>Allied Vision | Camera mount<br>Allied Vision cameras |

# Technical Drawings

Dimensions are in mm.



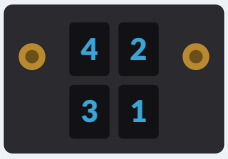
# Power and IO Connectors

Connector side of the X2000. Mating terminal blocks for the PWR and IO connectors are included.

| | |
|---|---|
| **PWR** | Power input, 12-30 VDC (24 VDC nominal) |
| **IO** | CAN bus terminal |
| **HDMI** | 1x HDMI 2.1 video output |

| | |
|---|---|
| **USB** | 2x USB 3.1 Type-A |
| **LAN** | 2x 1 Gigabit Ethernet (RJ45) |
| **SFP+** | 1x 10 Gigabit SFP+ |

## Power Connector




PWR

| | |
|---|---|
| Connector Type | Phoenix Contact 1787014 |
| Mating Connector | Phoenix Contact 1708595 (included) |
| Input Voltage | +12 V min, +30 V max (24 VDC nominal) |

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

## I/O Terminal Connector

IO

| | |
|---|---|
| Connector Type | Phoenix Contact 1787030 |
| Mating Connector | Phoenix Contact 1790315 (included) |

| Pin | Description | I/O Type |
|---|---|---|
| 1 | Reserved | — |
| 2 | Reserved | — |
| 3 | Reserved | — |
| 4 | Reserved | — |
| 5 | CAN_H | I/O |
| 6 | GND | Power |
| 7 | CAN_L | I/O |
| 8 | GND | Power |