Boulder AI

DNN Node™

Add AI capabilities to your existing RTSP/IP camera system with the DNN Node™.

The Deep Neural Network Node, or DNN Node is a rugged, IP-67, waterproof, dustproof, embedded system capable of reading several RTSP network cameras. This tiny, fanless powerhouse replaces servers and reduces the size and complexity of integrating AI at the edge.

This powerful device is an ultra power efficient, supercomputing powerhouse with special functions designed for extremely rugged environments. It contains all necessary elements to sample enormous high resolution scenes, reduce the data through deep learning (Caffe, Tensorflow, CuDNN), and store or transmit highly reduced, con-textual information.
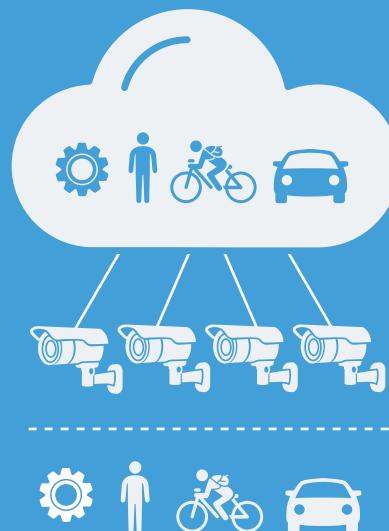

MADE IN USA
AMERICAN PRODUCT

Features

Onboard computer: operates in a serverless environment

Camera Connections: Supports 1-4 IP cameras via RTSP streams, depending on AI models utilized

Storage: Up to 4 TB onboard storage plus scalable cloud storage

Built for the Boulder AI Ecosystem

Cloud Platform Enabled
• Remote device management & updates
• Remote service management & config
• Centralized data dashboards & reports
• User management & permissions

Edge Software Enabled
• OTA service & firmware updates
• Edge UI onsite image, video, network configuration dashboards & reports
• User management & permissions

DNN Node™ Specifications

DIMENSIONS

GENERAL	
# of IP cameras supported	1 to 4 (Dependent on the AI models implemented)
Max Resolution (per camera)	4K
Image Rate (per camera)	60 FPS
Video Input	H.264 & H.265 Input Supported
Max Frame Rate	60 FPS @ 4K
Privacy	hardware enforced privacy regions, GDPR compliant.
Web Browser Compatibility	Chrome, Firefox, and Microsoft Edge Browsers supported

PROCESSOR	
GPU	256 cores
Compute Performance	1.33 Teraflops
CPU	Dual-Core 1.5 64-Bit CPU and Quad-Core ARM
Memory	8 GB 128-bit LPDDR4 1600MHz

NETWORK	
Protocols	IPv4, IPv6, TCP, UDP, ARP, HTTP, HTTPS, DHCP, DNS,NTP, RTP/RTCP, RTSP,
Streaming Protocols	Unicast(RTSP with configurable port + handle); Multicast(RTSP with configurable port and address ranges);
Authentication/Security	TLS Encrypted communication by default

PERIPHERALS	
Storage	NVMe SSD 1,2 and 4TB, BAI Cloud
SD Card	UHS Speed Class 1 or 3 Supported up to 30 MB/s (ships with 32GB card)
Audio	NA

ELECTRICAL	
Ports	PoE+ Female Ethernet Port
Network Cable Type/Speed	Cat5e or greater required @ 1000Mb/s
Power Input	PoE+ (IEEE 802.3at)
Power Consumption (maximum)	25.5 W sustained, 30 W peak

MECHANICAL	
Camera Mount	2x 1/4-20 2" space bottom mount
Weight	2.43 lbs, 1.102 kg
Dimensions (L x W x H)	9.5"x3"x3.5"
Housing Material	Aluminum

ENVIRONMENTAL	
Operating Temperature Range	NEMA TS2 which is -34°C to +74°C (=29.2F to 165.2F)
Operating Humidity	18 to 95% humidity over the range
Ingress Protection	IP67
Shock/Vibration	the ability to withstand 0.5g @ 5 to 30Hz vibration, and 10g's of shock

CERTIFICATIONS	
	FCC, NEMA, IP67,RoHS,CE

OPTIONS	
Name	Description
NVMe M.2 Storage	Non-Volatile Memory Express (NVMe) SSD storage: 1TB, 2TB, or 4TB
SD Card Storage	UHS-1 16GB to 512GB SD Card
WiFi/Bluetooth Module	BAI PCB module that provides WiFi and Bluetooth capability onboard the DNN Cam
GPS/IMU Module	GPS - 20Hz Global position 3m; IMU - Inertial measurement unit for anti tampering.
4G Module	Sierra Wireless 4G LTE modem with SIM / eSIM