



# DFI

## Intelligent Video at the Edge: DFI, DEEPX, and Network Optix Power Scalable AI Surveillance

### Meet the Edge AI Ecosystem: Hardware, Acceleration, and Orchestration in Sync

As cities grow more connected, intelligent video surveillance has become essential for public safety, real-time situational awareness, and infrastructure resilience. According to [Mordor Intelligence](#), the city surveillance market is projected to grow from USD 14.40 billion in 2025 to USD 21.65 billion by 2030, with a CAGR of 8.5%. This growth is fueled by increasing investment in AI, edge computing, and real-time video analytics.

However, deploying edge AI surveillance at scale presents significant challenges—including the need for power-efficient computing, environmental durability, and seamless system integration and operation.

To meet these demands, DFI has partnered with leading AI and video technology providers to deliver a unified Edge AI platform—designed for fast, scalable, and resilient smart surveillance across both urban and industrial environments.

## What It Really Takes to Deploy Smart Surveillance at the Edge – The Challenges

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Deploying smart surveillance in modern urban and industrial environments is more than just about placing more cameras—it also covers delivering real-time, reliable, and scalable intelligence at the edge. From bandwidth limitations to harsh outdoor conditions, organizations face four critical challenges that can make or break deployment success:

- **Performance & Responsiveness**

Real-time analytics require ultra-low latency. Cloud-based systems often introduce delays and consume high bandwidth, undermining timely decision-making and raising privacy concerns.

- **System Integration & AI Interoperability**

In smart surveillance settings, the Edge AI model will be deployed to a fragmented landscape of devices and frameworks. Integrating AI models across diverse hardware slows deployment and adds engineering complexity.

- **Environmental Resilience**

Deployed in transit hubs, construction sites, or roadways, edge systems face shock, vibration, dust, and extreme temperatures—conditions that most commercial hardware cannot withstand.

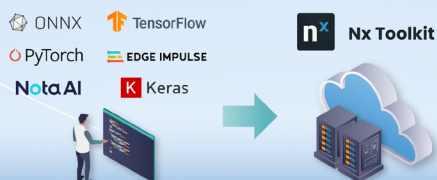
- **Scalability & Maintenance**

Managing model updates, device health, and system performance across expanding deployments is a major operational hurdle, especially with limited compute and power at the edge.

# Unified Edge AI: DFI x DEEPX x Network Optix

The complexity of AI-driven smart city infrastructure goes far beyond installing cameras and sensors. It requires intelligent orchestration, energy-efficient hardware, real-time processing, and resilience by design. This is where DFI, together with its strategic partners, steps in.

## Edge Intelligent Video Solution



### Developer Cloud

- AI Model Conversion for xPU Compatibility
- AI Model Deployment
- Encrypted P2P Connections Across All Nodes

### Intelligent Video Strategic Partners

Nx AI Manager Nx Witness Nx Go

### AI Accelerator Runtime Enabled by Strategic Partners

DEEPX HAILO intel. NVIDIA.

Ultra Compact Fanless / Ruggedized /  
Performance / Expandable Systems

Expandable 4U / 2U / 1U Servers



Lan / Wan / Switch

### DFI Edge Node / Server

- AI Inferencing
- Local Network
- Data Processing
- Data Caching & buffering
- Control Response
- Virtualization

### Vision Device Layer

- CCTV
- IPCAM
- Body cam
- Dash Cam

## DFI: Future-Ready Edge AI Lineup

DFI's industrial-grade platforms power reliable edge AI for intelligent video, surveillance, and infrastructure in harsh environments. From compact fanless PCs and AI systems to SoMs and edge servers, DFI delivers flexibility, ruggedness, and long-term performance.

One of the standouts is the EC700-ASL, a rugged, fanless system powered by Intel® Amston Lake. With support for -40 to 60°C operations, Out-of-Band (OOB) management, Intel® TCC, and M.2 AI accelerator integration, it is ideal for mission-critical edge intelligent applications.

Beyond that, DFI systems support both x86 and Arm architectures with scalable AI options (via M.2 or MXM/PEG GPUs, NVIDIA Jetson Orin NX, or various discrete GPUs), and are trusted in various industries including: construction, mining, oil & gas, transportation, and defense—engineered to withstand shock, vibration, and harsh environments.

## DEEPX – Compact, Efficient AI Acceleration at Scale

To meet the AI performance requirements at the edge, DFI integrates with [DEEPX](#), a Korean pioneer in high-efficiency AI acceleration. The flagship DX-M1 M.2 module delivers up to 25 TOPS of performance—enabling real-time inference of 16+ video streams at 30+ fps while maintaining energy efficiency and GPU-level precision. Supporting a wide range of AI models such as YOLOv5/7/8, ResNet, and MobileNet, the DX-M1 seamlessly pairs with DFI hardware to deliver fast, accurate, and scalable AI capabilities. When integrated with DFI's EC700-ASL running NetworkOptix's Nx AI Manager, this AI acceleration processes advanced object detection models across 4 channels while keeping host CPU utilization at just 25%<sup>1</sup> or below<sup>1</sup>. This allows the system to handle additional workloads for other critical edge operations across surveillance and intelligent video applications.

\*Disclaimer: 1. The performance results presented are based on internal testing conducted by DFI's partner(s) under specific hardware and software conditions. Actual results may vary depending on system configuration, usage patterns, and environmental factors.



# Network Optix – Orchestrating AI Video Intelligence with Ease

To bridge vision AI software and system management, [Network Optix](#) provides the powerful Nx AI Manager, a member of the Nx Toolkits designed to simplify model deployment and coordination across heterogeneous hardware environments. With cloud-based model conversion, real-time deployment to edge systems, and an intuitive interface, Nx AI Manager ensures efficient AI workflows across accelerators and compute nodes. This allows system integrators, MSPs, and developers to manage large-scale AI driven video infrastructures effortlessly—enabling real-time analytics such as object detection, behavioral recognition, and license plate reading in complex smart city environments.



Whether it's for public safety, transportation, infrastructure monitoring, or city-wide analytics, DFI is committed to shaping a smarter, safer, and more resilient urban future—through innovative edge AI platforms and strategic partnerships that turn vision into scalable, real-world results.



Founded in 1981, DFI is a global leading provider of high-performance computing technology across multiple embedded industries. With its innovative design and premium quality management system, DFI's industrial-grade solutions enable customers to optimize their equipment and ensure high reliability, long-term life cycle, and 24/7 durability in a breadth of markets including factory automation, medical, gaming, transportation, smart energy, defense, and intelligent retail.

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