DFI

Revolutionizing Factory Safety with DFI Ultra Compact Fanless Systems: Preventing Industrial Accidents and Minimizing Business Losses

According to the research from MAXIMIZE MARKET RESEARCH PVT. LTD, the industrial computing market was valued at USD 318.37 billion in 2023 and is projected to grow at a CAGR of 8.9% from 2024 to 2030, reaching USD 578.26 billion. This expansion is fueled by the accelerated adoption of robotics, AI, and IoT, emphasizing the growing need for high-performance, reliable, and cost-efficient industrial solutions. As industries scale up automation, achieving greater efficiency and reducing total cost of ownership (TCO) has become essential for sustained success.

Industry: **Factory Automation**

Application: **Computer Vision & DFI's Out-of-Band (OOB)**

Solution: **EC700-ADN/EC710-ADN & EC700-ASL**

AI's increasing role in industrial applications is undeniable. DFI offers a diverse range of edge AIoT computing platforms, covering both x86 and ARM architectures, to meet various customer needs, such as smart decision-making and predictive maintenance. In industrial settings, Out-of-Band (OOB) management plays a crucial role in optimizing operations. DFI's in-house OOB technology enables remote monitoring, reducing downtime, maintaining performance, and optimizing automation system management, while supporting troubleshooting, system recovery, and diagnostics to boost operational efficiency.

In addition to hardware, DFI also provides comprehensive services, including one-stop ODM services and software integration (such as BIOS and firmware). We are committed to helping customers create the most efficient and cost-effective products, ensuring they stand out in a highly competitive market.

Maximizing Edge AIoT Computing Efficiency in Factory Automation

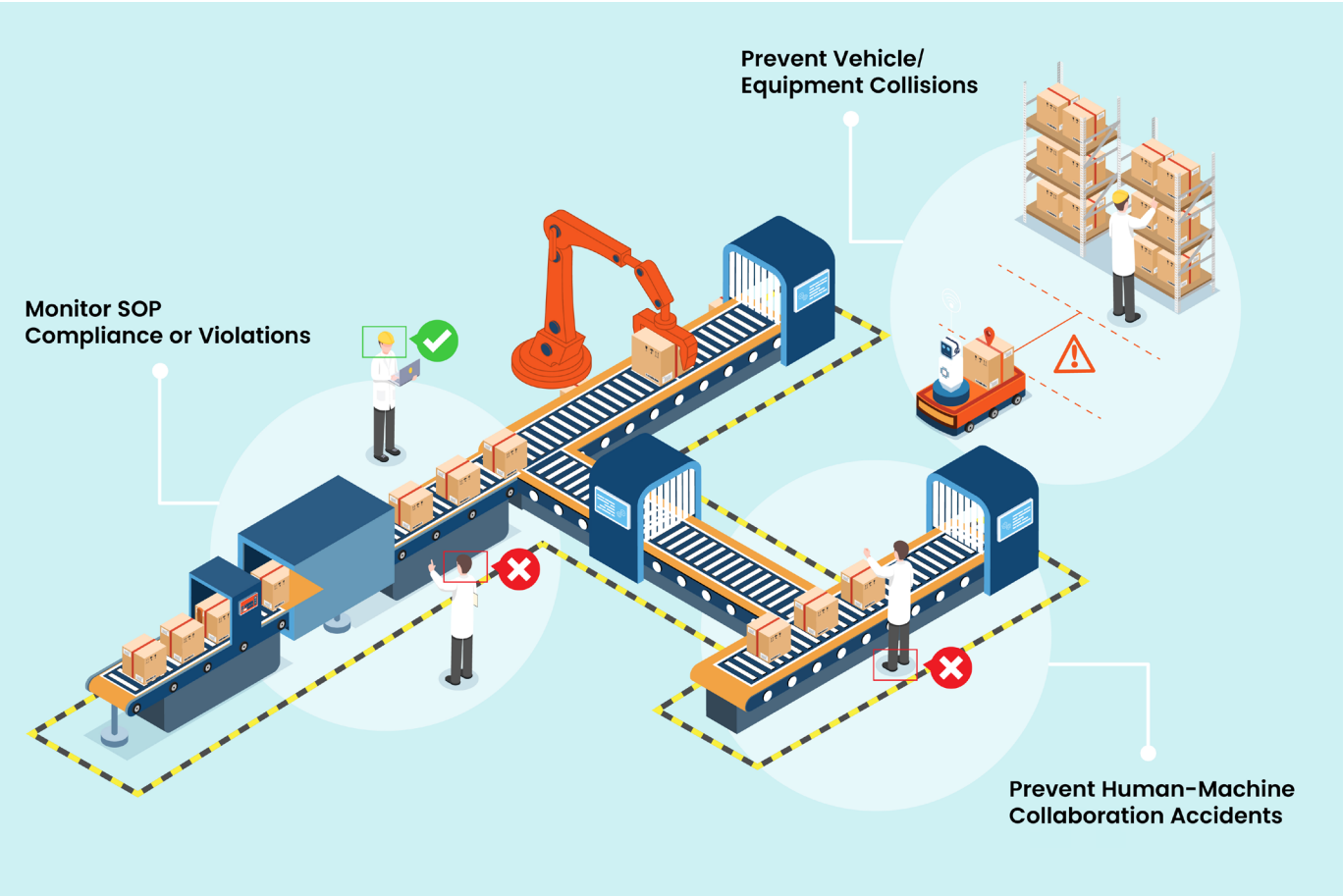
In today's fast-evolving factory automation landscape, achieving unmatched efficiency across all operations is essential for sustainable, cost-effective, and reliable performance. DFI's ultra compact fanless systems are meticulously designed to deliver high performance while minimizing power consumption, helping customers maximize productivity with fewer resources. Beyond performance, DFI ensures long-term hardware stability with a defect rate of less than 1,000 DPPM, offering peace of mind and reducing customers' TCO. Emphasizing DFI's reliability further enhances device value through features like OOB and AI expansion, enabling customers to focus on advancing their production efforts.

Engineered for seamless integration and scalability, these systems offer a broad range of I/O and connectivity options, enabling the easy incorporation of AI accelerators, vision systems, and industrial peripherals to meet the evolving demands of production. By enabling AI processing at the edge, DFI offers selected ultra-compact fanless systems with DEEPX or Hailo AI accelerators, all of which have undergone rigorous compatibility and reliability testing, enhancing edge AI computing for decision-making, predictive maintenance, and quality control in factory automation, thereby driving factory optimization.

In industrial environments where uptime is critical and remote access is essential—particularly in unmanned or hard-to-reach locations. DFI's in-house OOB management takes remote control to the next level. This feature allows for troubleshooting, BIOS updates, and more, while minimizing disruptions and ensuring continuous 24/7 operations.

Providing Reliable AI-Powered Systems for Factory Safety

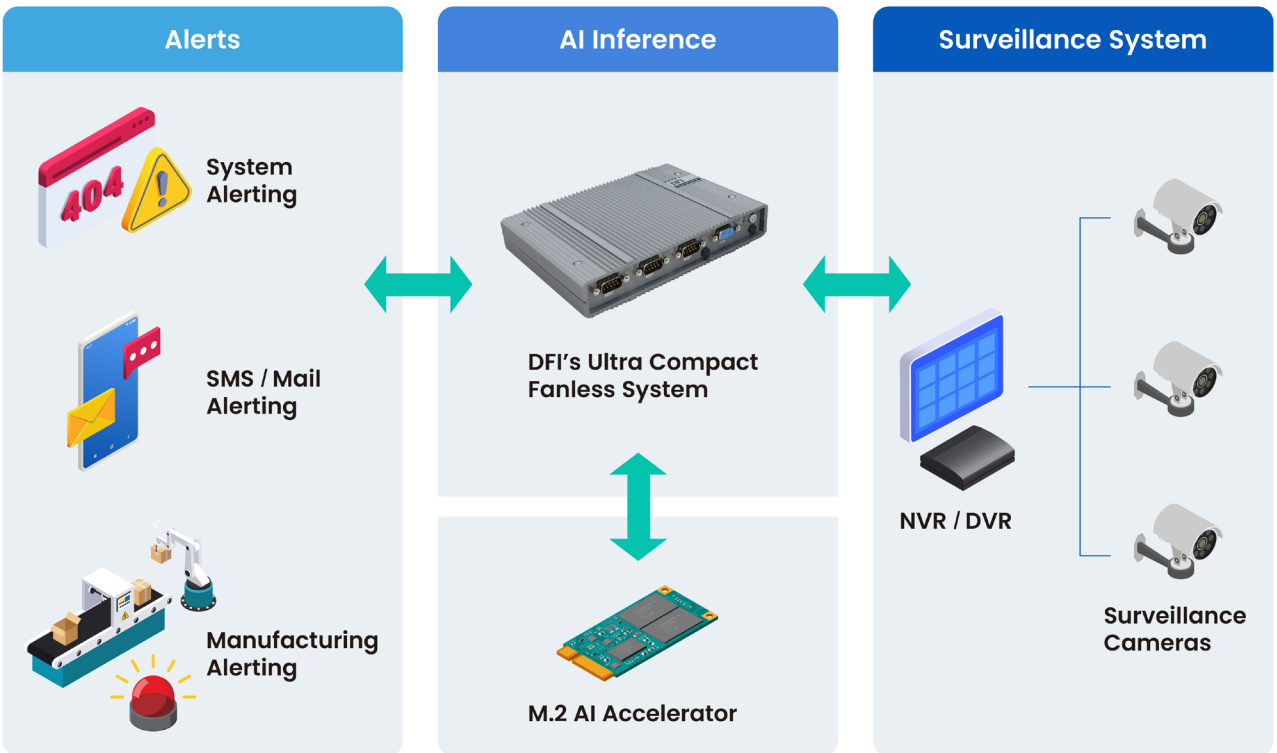
DFI collaborates with leading AI accelerator providers such as HAILO, DEEPX, Intel, Nvidia, and more, delivering high-performance and efficient AI embedded solutions across various industries. One of our customers chose DFI's ultra compact fanless system and integrated an M.2 AI accelerator to enhance factory safety on their automated production line—preventing human-machine collaboration accidents, vehicle/equipment collisions, and monitoring SOP compliance or violations. Additionally, due to the critical nature of industrial safety, DFI's in-house OOB management is implemented to minimize downtime losses. How does DFI's system meet customer needs? Let's take a closer look!



DFI's ultra compact fanless systems: These systems are designed for industrial applications, featuring versatile Intel CPU SKUs, a fanless design with DFI's advanced thermal management for reliable and energy-efficient performance in demanding environments. With over 40 years of expertise, DFI seamlessly integrates software, BIOS, and firmware, including the Slim Bootloader for quick boot-up. DFI's in-house OOB management allows remote monitoring and recovery, even when the OS is unresponsive. The system's compact, refined, and durable design ensures reliable performance in space-constrained environments. Backed by DFI's extensive hardware and software experience, these products maintain exceptional quality, consistently meeting customer expectations over time.

AI M.2 Accelerator: Powered by the DEEPX DX-M1, this chip delivers high-performance AI computing with ultra-low power consumption, optimizing edge AI efficiency. It supports real-time processing of 16+ video channels, achieving 30+ FPS inference speed with GPU-level precision and up to 25 TOPs of AI performance. The DX-M1 is compatible with a wide range of AI models, from YOLOv5 to the YOLOv8 and Vision Transformer. With its cutting-edge technology, low power consumption, and cost-effectiveness, it is the ideal AI chip for customers seeking high performance and energy efficiency.

Surveillance System & Alerts: High-performance cameras capture high-definition images, which are then synchronized and processed through DFI's Ultra Compact Fanless System and M.2 AI Accelerator for edge AI computing. Using computer vision technology, it monitors the safety of personnel around fixed and mobile equipment in real time, quickly transmitting alert information to multiple warning platforms after AI analysis.



Explore DFI's Ultra Compact Fanless Systems – EC700-ADN, EC710-ADN & EC700-ASL

As smart manufacturing and AI-driven automation advance, real-time AI computing and remote management are key to efficiency and reliability. DFI's EC700-ADN, EC710-ADN, and EC700-ASL deliver power efficiency, flexible AI computing, real-time performance, and OOB management, making them ideal for edge AI computing in factory automation.

Designed for Industrial Computing

Versatile Computing and Environmental Adaptability:

Choose from Intel® Alder Lake-N, Intel® Core™ i3, or Intel® Atom® processors to match your specific computing and environmental needs. Select the EC700-ADN for standard performance, the EC710-ADN for enhanced computing power, or the EC700-ASL for wide-temperature applications.

Intel® Time Coordinated Computing (TCC):

Designed for precise timing synchronization, Intel® TCC enhances robotic motion control and high-speed industrial networks. This feature is available exclusively on embedded SKUs, including Intel® Atom® X7211E, X7213E, X7425E, and Intel® Processor X7433RE, X7213RE, X7211RE, X7835RE.

MIL-STD-810G Compliance:

Designed for rugged environments, our ultra compact fanless systems meet MIL-STD-810G standards, providing robust shock and vibration resistance for reliable performance under demanding conditions.

Enhanced Connectivity and Security:

Supports 3 LANs for virtual local area network (VLAN) setup, enhancing security through network segmentation and traffic isolation. Equipped with 4 COM ports for versatile controller connectivity. Multi-display output supports up to four displays (Project-based support, standard support for 3 displays), optimizing digital signage performance, its design fits perfectly in the tight space behind the monitor, effectively handling the important task of digital signage.

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Seamless AI Acceleration

AI-Ready Systems:

DFI ensures its systems are optimized for AI-powered workloads, driving the next phase of industrial automation. Thanks to the M.2 AI accelerator enable seamless integration with AI accelerator, significantly enhancing AI performance in machine vision, predictive maintenance, quality inspection, and autonomous robotics, reducing cloud dependency and minimizing latency.

Optimized Performance Efficiency:

Some AI applications do not require overly powerful hardware. With DFI's ultra-compact fanless systems—EC700-ADN, EC710-ADN, and EC700-ASL—combined with the expandable M.2 AI accelerator, optimized computational performance can be delivered within limited space, saving energy and effectively utilizing space to perfectly meet field deployment requirements.

Remote Management & Industrial-Grade Reliability with DFI's in-house OOB features

Effortless IT/OT management:

Monitor system status, remotely power on/off, and retrieve system log files, even in the event of an OS crash or power-off.

BIOS operation when the system is off or before the OS loads:

Remote control for BIOS setup/UEFI Shell, maintenance in case the BIOS is corrupted during the reflash process, and remote BIOS version upgrades.

Remote OS image recovery:

Boot from a uSD card using Terabyte restore tools (Project-based support).

Future-Proofing Industrial Automation with Scalable AI & Edge Computing

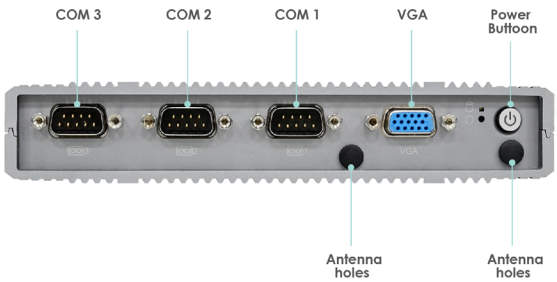
DFI has over 40 years of product development expertise, reflecting its core commitment to delivering exceptional quality and meeting customer needs. Our systems seamlessly integrate Intel's advanced processors, AI acceleration, and DFI's proprietary OOB management, designed to meet the evolving demands of AI and automation. Engineered for reliability and precision, they ensure stable performance, real-time decision-making, and reduced operational costs through seamless remote management. At DFI, we always prioritize customer satisfaction, delivering solutions that combine cutting-edge technology, scalability, and uncompromising quality—empowering businesses and customers to innovate, grow, and succeed in an ever-changing industrial landscape.

EC700-ADN, EC710-ADN & EC700-ASL – Key Features

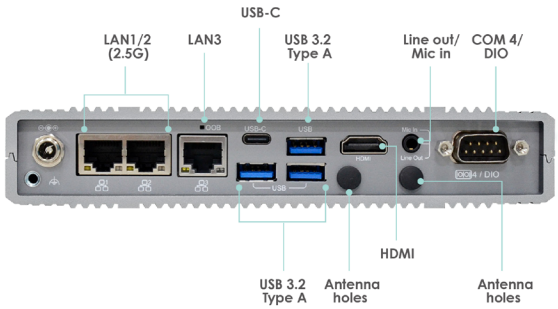
Learn more about DFI's **EC700-ADN/EC710-ADN** & **EC700-ASL**

PANEL: EC700-ADN/EC700-ASL

System Height = 33mm



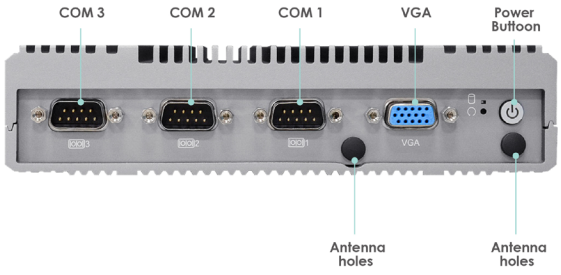
Front View



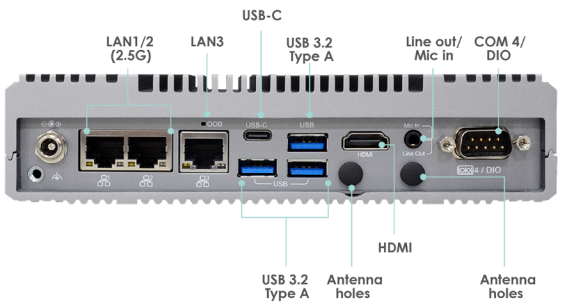
Rear View

PANEL: EC710-ADN

System Height = 43mm



Front View



Rear View

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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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