

DFI

Next-Gen Diagnostics: DFI MPC350-RPS Powers Real-Time Medical AI Inference at the Edge

Accurate diagnosis is the cornerstone of effective healthcare, especially when illnesses are not visible on the surface. Traditionally, medical professionals rely on their expertise to interpret X-rays, MRIs, and CT scans—but even the most skilled eyes can miss subtle abnormalities. Today, with the rise of AI inference technology, diagnostic accuracy is being redefined. According to [Fortune Business Insights](#), the AI healthcare market is expected to grow from USD 39.34 billion in 2025 to USD 490.96 billion by 2032, at a staggering CAGR of 43.4%.

Industry: **Healthcare**

Application: **AI-Assisted surgery, AI-assisted diagnosis, AI-assisted Surgical Robot, AI-assisted Precision Medicine, medical diagnosis, medical imaging, AI computing, AI inference, 3D Rendering, medical scans**

Solution: **DFI MPC350-RPS Medical Edge AI Server System**

The Shift from Traditional to AI-Assisted Medical Diagnosis Powered by AI Inference

For decades, medical diagnosis has relied heavily on the expertise and experience of doctors. Physicians meticulously analyze image scans—such as X-rays, MRIs, CT scans and 3D imaging—to identify potential abnormalities and determine the best course of treatment. However, this process is both time-consuming and mentally exhausting. Even the most experienced doctors can struggle to detect subtle anomalies, as some irregularities may be faint, masked by overlapping structures, or simply too small to notice at first glance. Additionally, factors such as fatigue, human error, and the sheer volume of cases can lead to diagnostic inconsistencies. According to the [American Journal of Roentgenology](#), approximately 54–72% of diagnostic radiologists report experiencing burnout, which negatively impacts job satisfaction and performance. The manual interpretation of medical images not only demands extensive time and effort but also increases the risk of misdiagnosis, potentially delaying critical treatments.



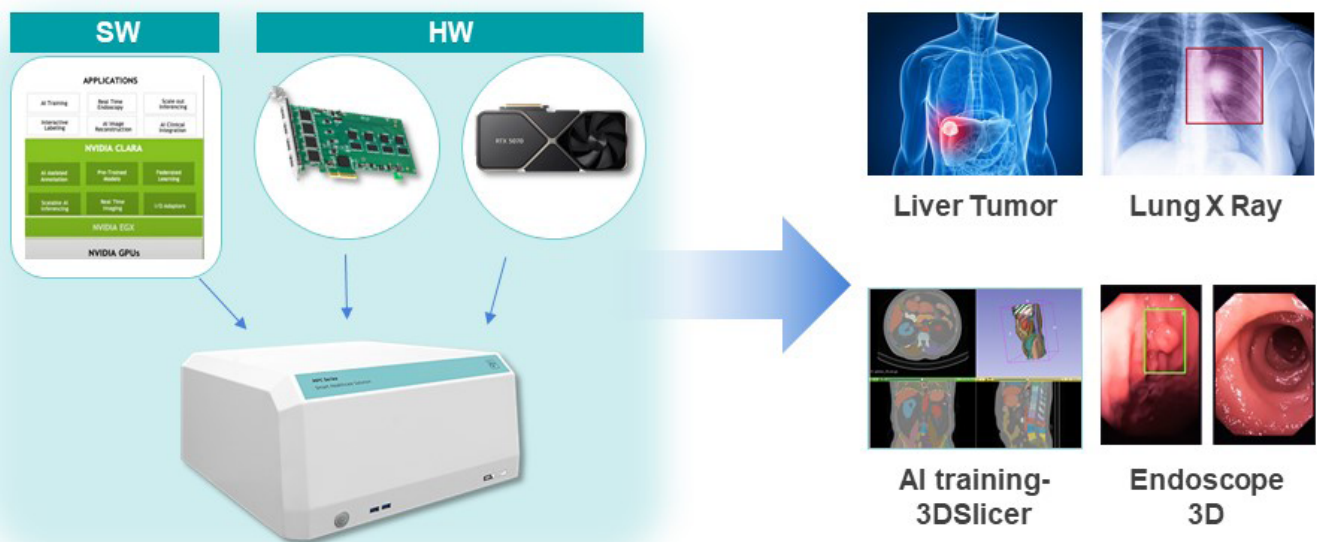
AI-assisted diagnosis is revolutionizing this landscape by enhancing speed, precision, and efficiency in medical imaging. Advanced machine learning algorithms enable AI to rapidly process and analyze vast amounts of imaging data, identifying patterns and abnormalities that might otherwise go unnoticed.

AI-powered diagnosis systems excel in detection, segmentation, and classification, providing doctors with detailed insights in a fraction of the time. By automating repetitive tasks and pre-screening images, AI-assisted diagnosis significantly reduces the workload of medical professionals, allowing them to focus on complex cases that require human expertise. Moreover, AI-driven diagnostics continuously learn and improve from large datasets that refine accuracy over time. This not only enhances diagnostic reliability but also minimizes human error, ensuring that patients receive faster, more accurate assessments and timely, proper treatment.

To unlock the full potential of AI-assisted diagnosis, a high-performance AI computing engine is essential for executing real-time image detection, analysis, and inference. This is where DFI, a global leader in industrial computers with deep expertise in AI edge computing, plays a pivotal role. In recent years, DFI has collaborated with partners and clients worldwide to design and manufacture cutting-edge medical AI edge servers.

DFI MPC350-RPS: Enabling Real-Time AI Inference for Advanced Medical Diagnosis at the Edge

DFI's latest medical edge server MPC350-RPS is a high-performance AI computing platform specifically designed to support real-time medical imaging applications. With built-in features tailored for healthcare, it meets the demanding computational needs of applications like AI-assisted CT diagnosis, AI-assisted surgery, endoscopy analysis, and cutting-edge research in drug discovery and genomics.



Accelerated Diagnosis with a Powerful AI Engine

The MPC350-RPS is equipped with a robust compute engine built on Intel's 14th/13th/12th generation processors, along with exceptional scalability to support up to two high-end Nvidia AI GPUs (compatible with RTX 6000 Ada, RTX 5000 Ada, RTX 4000 Ada and GeForce RTX 5070 Ti) for a wide range of medical AI computing applications. This powerful setup enables AI inference locally, accelerating high-resolution image detection, segmentation, and classification without relying on cloud-based AI solutions. By processing data on-site in real-time, the MPC350-RPS significantly reduces diagnostic delays while improving the accuracy and efficiency of analyzing complex medical images like CT, MRI, X-ray, and ultrasound scans.

Multi-Channel Capture Card Support for Real-Time Imaging

Medical imaging and AI-assisted procedures require high-performance capture capabilities for precision and speed. In diagnostic settings, capture cards are essential for acquiring high-resolution images, while AI-assisted surgery relies on video capture cards for real-time streaming. DFI MPC350-RPS is designed to support these critical applications, featuring two PCIe Gen 4 x4 slots for simultaneous image capturing and ultra-low-latency video streaming. This capability enhances AI-assisted diagnostics, 3D imaging, surgical guidance, and endoscopy analysis, delivering real-time visual insights that drive faster, more accurate medical decisions.

Multiple High-Speed I/Os and Expansions

To facilitate the real-time transfer and storage of large volumes of image data, the MPC350-RPS medical edge server offers a comprehensive array of high-speed I/Os and expansion options, including 2.5GbE Ethernet ports, M.2 PCIe Gen4 NVMe slots, multiple USB ports, and various display outputs such as HDMI 2.0a, DP++, and VGA. These high-performance interfaces ensure fast data transmission, efficient storage, and seamless connectivity with other medical equipment, enabling smooth and reliable operation in modern healthcare environments.

Easy-To-Clean Enclosure Design for Clinical Environment

In addition to its exceptional performance, DFI MPC350-RPS features a sleek, easy-to-clean, stylish enclosure designed for use in examination rooms and operating rooms. Its modern aesthetic, rounded corners, and smooth white surface minimizes dust buildup and simplifies routine maintenance while creating a calming clinical environment. This thoughtful design ensures consistent compliance with medical hygiene standards, supporting a sterile and clean healthcare environment.

Enhanced Data Privacy

By leveraging local AI inference, the MPC350-RPS processes, analyzes and stores patient data directly within the hospital, eliminating the need for uploading data to clouds. This edge-based architecture minimizes the risk of data leakage and unauthorized access, significantly enhancing data privacy and security. In addition, the integration of TPM 2.0 (Trusted Platform Module) ensures robust hardware-level security for sensitive data, providing an extra layer of protection against potential threats and tampering. The system guarantees full compliance with regulatory standards, delivering a secure, reliable solution for medical data processing.

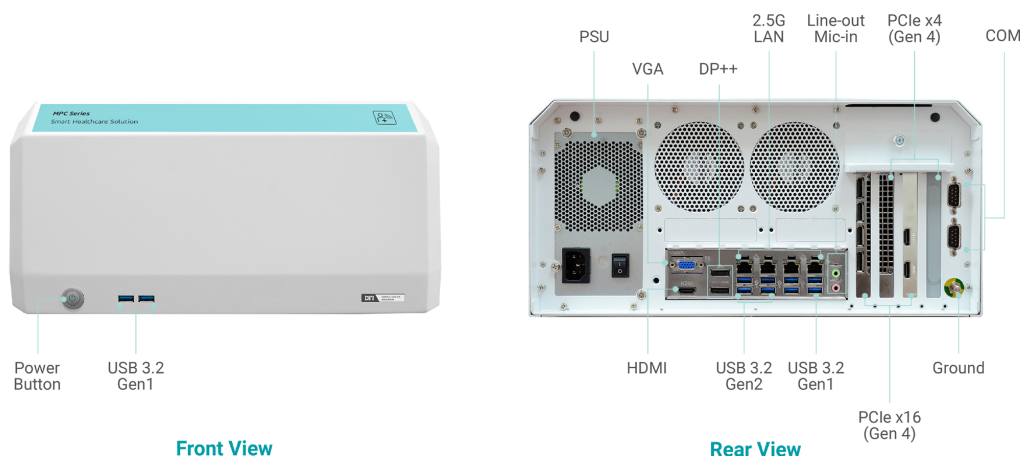
Fully Compliant Medical Regulations

The medical system MPC350-RPS is fully compliant with IEC/EN-60601-1 and IEC/EN-60601-1-2 medical regulations, ensuring safe and reliable operation in clinical environments. These certifications guarantee that the medical edge server meets rigorous standards for electrical safety, patient protection, and electromagnetic compatibility, minimizing risks to both patients and healthcare personnel.

Elevate Healthcare Excellence with AI-Driven Diagnosis at the Edge

DFI MPC350-RPS is a game-changer in medical image diagnosis, offering unmatched advancements in diagnostic accuracy while minimizing human error. By harnessing the power of AI to streamline workflows, it reduces the workload of doctors and medical staff, helping to prevent fatigue and burnout. Furthermore, its secure edge architecture enhances data privacy and ensures full regulatory compliance, making it a reliable and efficient solution for modern healthcare environments.

By integrating advanced AI inferencing, real-time image processing, and seamless connectivity, the MPC350-RPS empowers medical professionals to deliver faster, more precise diagnoses. This translates into improved patient outcomes, optimized treatment efficiency, and an elevated standard of care, paving the way for the next-gen smarter, higher-quality healthcare.





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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