

Use Case

kontron
The Power of IoT

AI in Medical Technology High-Performance Platforms for Digital Healthcare- Applications



AI in Medical Technology

High-Performance Platforms for Data-Intensive Medical Applications

Flexible and reliable industrial PCs for AI-based image analysis, diagnostics, and data-intensive healthcare applications

Digitalization is fundamentally transforming the healthcare sector. The increasing connectivity of medical devices, clinical IT systems, and mobile applications is generating enormous amounts of data, opening up new possibilities for diagnostics, treatment, and research.

Artificial Intelligence (AI) plays a key role in this. Modern AI algorithms can analyze large amounts of data in a very short time, recognize complex patterns, and support medical professionals in making diagnostic decisions.

The potential of these technologies is particularly evident in medical imaging. AI algorithms can analyze X-ray, CT, or MRI images and identify abnormalities that are difficult for the human eye to detect. This allows for faster diagnoses while simultaneously increasing accuracy.

In the future, AI systems will increasingly combine various data sources – such as image data, genetic information, or clinical patient data. This comprehensive data analysis enables more precise diagnoses, personalized treatment approaches, and earlier detection of diseases.

High Demands on Medical IT Systems

As the use of AI increases, so do the demands on the underlying hardware platform.

Medical applications must process large amounts of data in real time while meeting the highest standards of reliability, security, and availability.

High-performance graphics cards, such as NVIDIA GPUs, can accelerate training and inference processes; they also enable real-time analysis in the operating room or improved image quality in CT and MRI scans, even at lower radiation doses.

Key Applications

Typical AI applications in healthcare:

- › AI-assisted analysis of X-ray, CT, and MRI image data
- › Deep learning algorithms for recognizing medical patterns
- › Predictive analytics for forecasting disease progression
- › Real-time analysis of large medical datasets
- › Decision support for medical professionals
- › AI-based applications for telemedicine and patient monitoring



High Requirements

Typical requirements include:

- › Parallel processing for complex AI algorithms, high-performance GPU acceleration
- › High system availability for 24/7 operation
- › Scalability to handle growing data volumes
- › Interoperability for secure and networked data exchange
- › High security and compliance standards
- › Quiet operation in clinical environments
- › Long-term availability of the hardware platform

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Kontron's High-Performance Platforms for Demanding Medical Systems

To meet these requirements, Kontron offers powerful and reliable systems for data-intensive medical applications.

- › High computing power up to 14th Gen Intel® Core i9/i7/i5/i3 processors**
 enables fast and precise analysis of large medical datasets, e.g., in imaging, AI diagnostics, and clinical decision support
- › Use of powerful GPUs (e.g. NVIDIA)**
 for accelerated inference processes and real-time analysis
- › Reliable 24/7 operation under demanding conditions**
 ensures the availability of critical applications such as monitoring or emergency diagnostics
- › Long-term product availability of up to 10 years**
 provides planning security for medical devices with long life cycles and approval processes
- › Modular expandability and flexible design**
 supports integration into existing IT infrastructures and allows adaptation to new medical technologies
- › Made in Europe: short response times and close collaboration with regional partners**
 simplifies support, integration, and regulatory coordination in the healthcare market
- › Flexible installation: 1U / 2U / 4U rackmount, workstation, or box PC for wall mounting**
 facilitates integration into hospital IT, equipment cabinets, and mobile medical systems
- › Efficient, maintenance-free, and quiet cooling (≤35 dBA)**
 allows for use in patient-facing areas without disrupting the work environment
- › RAID support and hot-swap storage options**
 enhance data security and enable uninterrupted operation
- › Tool-free replacement of fans, filters, and drives**
 reduces maintenance requirements and minimizes downtime in hospital operations

Experienced Partner for MedTech Solutions

Kontron has many years of experience in developing high-performance computer systems for the medical technology sector. The company's rackmount servers, box PCs, and embedded systems are used worldwide in numerous medical applications – ranging from diagnostics to therapy and monitoring systems, as well as clinical IT and telemedicine.

With application-ready platforms and comprehensive engineering services, Kontron supports MedTech OEMs and system integrators in developing high-performance and future-proof medical systems.



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Products

KBox B-301-RPL

High-performance industrial PC with 14th Gen Intel® Core™ i9/i7/i5/i3 processors for AI applications.



KISS Rackmount Systems

Industrial-grade rackmount systems with 14th Gen Intel® Core™ i9/i7/i5/i3 processors for demanding and noise-sensitive environments.



Workstation KWS 3000

High-performance and compact workstation with 14th Gen Intel® Core™ i9/i7/i5/i3 processors for machine learning, AI workflows, and graphics-intensive applications.



About Kontron

Kontron AG (www.kontron.com, ISIN AT0000A0E9W5, WKN A0X9EJ, KTN) is a leading IoT technology company. For more than 20 years, Kontron has been supporting companies from a wide range of industries to achieve their business goals with intelligent solutions. From automated industrial operations, smarter and safer transport to advanced communications, connectivity, medical, and energy solutions, the company delivers technologies that add value for its customers.

Kontron has around 7,000 employees in over 20 countries worldwide and is listed on the SDAX® and TecDAX® of the German Stock Exchange.

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