



Medical Touch Panel PCs and Embedded Motherboards Help Drive X-Ray Imaging Technology

The trends toward better X-ray image quality and lower X-ray intensity have been features of X-ray machine development for some time. Now the advent of powerful processors on embedded motherboards and the availability of high performance medical-grade touch panel PCs are driving X-ray imaging technology.

High quality digital X-ray images help doctors with their diagnosis while the reduction in the intensity of the X-rays to a minimum lowers patient exposure. Both high quality digital image acquisition and the adjustment of X-ray power to the minimum needed in a particular situation are data intensive and require high-performance equipment.

Embedded motherboards must be highly customizable and powerful enough to meet these challenges. They have to be specifically designed for each medical device. Medical touch panel PCs must be integrated into the X-ray system in order to rapidly display high-resolution images while offering convenient, intuitive and reliable operation.

Major industrial computer designer and manufacturer Axiomtek can supply embedded motherboards and medical-grade touch panel PCs (MPC) that offer excellent performance while meeting stringent medical certification requirements. In addition to supplying the hardware, Axiomtek can provide motherboard design support for medical device manufacturers and help with system integration for medical panel PCs. Axiomtek's medical-grade products work reliably in demanding medical environments and deliver the performance required for cutting-edge X-ray imaging.

Medical Embedded Motherboards

Axiomtek's embedded motherboards designed for medical applications can process large amounts of data rapidly and accurately. The boards can be customized to suit medical device manufacturer requirements or satisfy system integration parameters. Advanced features include expandability options for USB, DIO, PCI Express and Gigabit LAN ports in a wide variety of form factors such as 3.5-inch (CAPA), COM Express, Mini-ITX, Pico-ITX and more.

These motherboards are of robust construction and suitable for all kinds of medical applications. When used for X-ray machine control, they can modulate the radiation dosage, continuously adjusting the X-ray intensity to reflect the specific size of the target on the patient's body in order to lower the chances of causing radiation sickness or increasing the patient's risk of developing radiation-induced cancer. When processing data for images, they can carry out noise reduction and image enhancement functions. In addition to X-ray control and image processing, Axiomtek's embedded boards are suitable for integration into medical equipment such as blood testing systems, remote-presence robots and DNA sequencing machines.

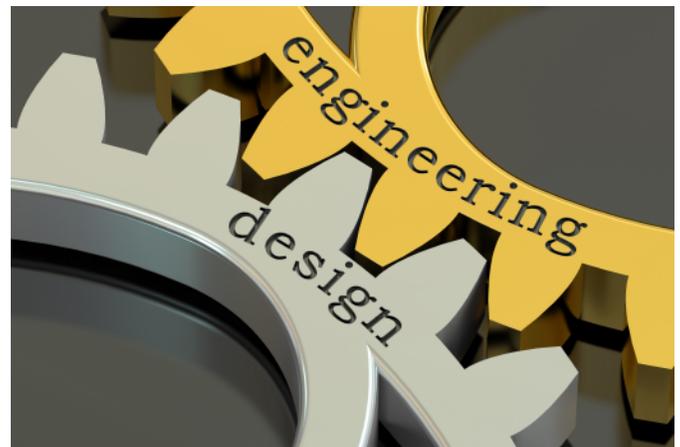
Medical-Certified Touch Panel PCs

Axiomtek's medical-certified, all-in-one touch panel PCs are high performance, high graphical display units characterized by excellent reliability and ease of use. Their low noise operation and rugged designs make them suitable for use as X-ray image displays, nursing carts interface, point-of-care terminal and many more in a wide variety of medical environments. The ability to run

various operating systems and the availability of many different software tools make it easy to integrate Axiomtek's feature-rich medical-grade touch panel PCs within hospital systems or existing networks.

These medical certified touch panel PCs are specifically designed for medical use and are certified with UL60601-1/EN60601-1, CE, and FCC Class B to satisfy the requirements of the medical industry. They feature high ingress protection front bezels for dust/liquid spillage and IPX1 full anti-microbial enclosures to prevent bacterial invasion.

Axiomtek's MPCs can be customized to fit almost any application and offer options to meet many different operational requirements. Full HD TFT LCD displays with 10-point multi-touch screen support are available along with various screen sizes with options for projected capacitive or 5-wire resistive touch screens. Flexible wireless communication options allow for effective capturing and transferring of important medical data. The MPCs are portable and allow medical professionals to access images and patient data from anywhere.



Design and Integration Assistance

Axiomtek can help medical device manufacturers with embedded motherboard designs as well as provide system integration support for both its embedded products and touch panel PCs. Design questions such as component selection, layout review, thermal design and certification help are crucial to supplying top quality devices that meet medical customer needs.

Axiomtek's design assistance services can help with critical issues during complex medical equipment development process. For X-ray imaging, such design questions can include data processing capacity, data storage and retrieval, noise identification and suppression along with image resolution. Axiomtek can assist with a portion of the project or take it from beginning to end, easing the burden of product development and deployment.

Advantages for Patients and Medical Professionals

The latest generation embedded motherboards and MPCs from Axiomtek can improve X-ray imaging to help medical professionals provide better medical care. High performance processors and screens control X-ray machines to reduce doses and deliver high quality images to doctors.

Patients are exposed to lower doses of X-rays and additional X-ray images can therefore be taken without exceeding safe limits. Doctors can view images free from noise and distortion and with greater detail. Patient images and data can be made readily available, even on wireless display panels and at a variety of locations.

High performance electronics can have a significant effect on the quality of X-ray imaging and associated healthcare. Axiomtek is ideally positioned to offer end-to-end solutions for medical product development and deployment. Axiomtek's experienced R&D and design assistance team have often been considered additional engineering resources and an extending part of our customers' project development teams through the design, integration and deployment processes of cutting-edge medical devices.

Product Spotlight

Feature-rich, Highly Customizable Embedded Motherboards



MANO500

- High performance 6th Generation Intel® Core™ i7/i5/i3, Pentium® or Celeron® processors with LGA1151 socket
- High memory capacity and high rate data transfer speed with two DDR4-2133 SO-DIMM support max up to 16 GB
- Rich I/O options with two RS-232/422/485 ports, four RS-232 ports, four USB 3.0 ports, six USB 2.0 ports, two Gigabit LAN ports, and eight digital I/O channels
- Ultra HD 4K display support through Intel® HD 530 Graphics chipset for four display interfaces via HDMI, VGA, DisplayPort, and LVDS/Embedded DisplayPort (eDP)



CEM500

- High performance 6th Generation Intel® Core™ i7/i5/i3 processors
- Accelerated data transfer capabilities with four SATA-600 interfaces with RAID 0/1/5/10 support for data storage reliability
- Rich signaling protocols; including one PCIe x16 v3.0, eight PCIe x1, four USB 3.0 signals, eight USB 2.0 signals, one Gigabit Ethernet featuring Wake-on-LAN, and 4-IN/4-OUT DIO
- Ultra HD 4K display support through Intel® Gen 9 HD Graphics chipset for four display interfaces via LVDS and three DDI ports (HDMI/DVI/DisplayPort)

Medical-certified Touch Panel PCs for Medical Carts or Point-of-care Terminals



MPC175-873

- Medical and safety certifications including UL60601-1/EN60601-1, CE and FCC class B
- High resolution 17-inch (350 nits brightness) SXGA LCD screen with built-in 5 mega pixel camera and optional DVD-ROM
- Dust and liquid spillage protection with rugged IP65-rated front bezel and IPX1 full enclosure with fanless, quiet operation
- Scalable CPU options with 3rd Generation Intel® Core™ i7/i5/i3 or Celeron® processors with Intel® QM77 PCH chipset
- Extensive expansion options with one PCI or PCIe x4 expansion slot and two PCIe Mini card slots



MPC225-873

- Medical and safety certifications including UL60601-1/EN60601-1, CE and FCC class B
- High resolution 22-inch (250 nits brightness) WSXGA TFT LCD screen
- Dust and liquid spillage protection with rugged IP65-rated front bezel and IPX1 full enclosure with fanless, quiet operation
- Scalable CPU options with 3rd Generation Intel® Core™ i7/i5/i3 or Celeron® processors with Intel® QM77 PCH chipset
- Extensive expansion options with one PCI or PCIe x4 expansion slot and two PCIe Mini card slots