Smart Manufacturing's Building Blocks for Success

AXIOMTEK

The emergence of high performance, intelligent industrial computer solutions has led to the rise of smart manufacturing. The use of robotics and machine vision in warehouses and production lines has resulted in higher efficiency and quality product output, as well as less waste of raw materials. It also lessened the need for human labor due to the machines' ability to examine items on the production line and accurately detect defects faster. There has been significant process improvements in factories that led to more productivity and faster logistics fulfillment. Predictive maintenance, which involves monitoring the condition of machines and "predicting" when the machines will start to fail, has allowed companies to conduct maintenance on them in advance to eliminate the risk of costly downtimes.

The building blocks for smart manufacturing involves the right software, as well as versatile, feature-rich industrial and highly reliable computer hardware with purpose-built features such as PoE ports for connection with cameras. Some offer support to protocols such as EtherCAT, allowing for better machine-to-machine communications. Some offer rich interfaces for connections to sensors and other devices. The concept of smart factory has become a reality with the development of more advanced hardware solutions.

Computer Solutions for Smart Factory

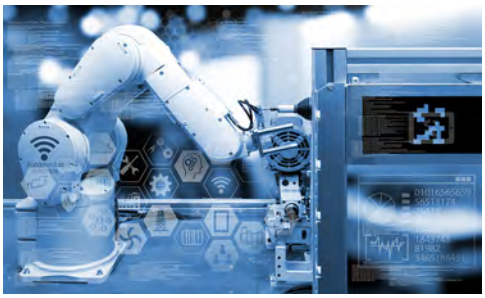
Axiomtek, a leading design and manufacturing company of industry-specific computer solutions, has developed its expertise in the industry for the past 30 years and created many advanced industrial computer solutions for OEM/ODMs and smart factory systems integrators that are versatile and easy to integrate. For example, one of the many advanced fanless embedded systems purpose-built for smart factory, the **eBOX671-521-FL**, is designed to be future-proofed and easy to deploy. It can be used as an edge computing controller and is a great choice for robotics, AI, deep learning and vision-related applications with GPU computing capabilities and its 4-CH PoE ports and rich interfaces are ideal for sensor connections. The **eBOX671-521-FL** offers scalable Intel® CPU choices and an option of enhancing performance with the MXM 3.1 Type A slot for interconnecting a GPU module, an ultimate way to double its capabilities for performance and to include enhanced graphical display. It also comes with Axiomtek's proprietary intelligent remote monitoring software, the **AXView 3.0**. Our video showcases our solution eBOX solution and its capabilities. Take a look at our **short video here** or contact us at **solutions@axiomtek.com** for more information.

Another example of a system designed for smart factory use is the highly expandable and easy to customize vision controller, the **IPS962-512-PoE**. This feature-rich computer has four PoE GbE LAN ports for camera interfaces and an integrated real-time vision I/O that includes 16-CH isolated DIO. The **IPS962-512-PoE**'s scalable CPUs, great expansion capability and modularized design makes it a versatile choice to meet the requirements of many projects.

IIoT Gateway to Enhance the Bottom Line

Axiomtek also offers a flexible Internet of Things (IoT) gateway controller, the **ICO500-518**. Its scalable, modular design with plug-in I/O modules offers a cost-effective and fast way to customize this feature-rich, compact controller. The **ICO500-518** offers many connectivity options and various useful features that include wide operating temperature and wide power input ranges for reliable operation in harsh factory environments. The gateway allows for IoT connectivity through the cloud, better analytics and learning, and also enhanced machine-to-machine communications. This gateway solution can help improve productivity level and overall operational performance, reduce costs and ultimately increase profitability.

Human Machine Interface Considerations



Smart factory operations rely heavily on the use of human machine interfaces (HMI) such as touch panel PCs, to control specific production functions. Axiomtek offers a wide range of HMI, including **multi-touch panel computers and industrial-grade displays**. The touch panel computer options are comprehensive, ranging from stainless steel, heavy-duty to light fanless models in our GOT series. Notable is the rugged **GOT3177T-311-FR**, a 17-inch SXGA TFT flat, resistive touch panel computer with modularized design for flexible and fast customization. It offers dual-display capability, and with its widescreen format, the HMI extends its visible areas and enables users to view more than one program window side-by-side, increasing productivity and efficiency. The **GOT3177T-311-FR** is durable, with an IP65-rated bezel, extended operating temperature of 0°C to +60°C and up to 1G vibration. It can also be equipped with an optional PCIe riser card expansion slot to allow for more customizations.

Our industrial touch display choices are also comprehensive. An example is the **P6157W-V2**. It features a 15.6-inch WXGA TFT 400 nits LCD with projective capacitive multi-touch and is NEMA 4/12 (IP65) compliant. It offers a full range screw-type, lockable AC-in and optional 24V DC-in for extra secure operations.

The Road to Project Deployment Success

Axiomtek's **embedded systems**, **vision controllers**, **IoT gateway controllers** and **all-in-one touch panel computer** products are made to support your project success. As a customer-focused organization, we also believe in personalized, "take the extra miles" service model to help our customers succeed. Our experienced support teams include design, application, hardware and software engineers as well as project managers, product managers, R&D and additional local resources. The teams are accustomed to smart manufacturing applications and demanding projects.

They continue to get high ratings from our customers for their customer-centric approach in helping our customers design, customize and deploy their projects as well as with post-deployment support.

For more information on how Axiomtek products can help meet your smart manufacturing project requirements, please visit **us.axiomtek.com** or contact **solutions@axiomtek.com**.

High Performance Edge Computing Controller - eBOX671-521-FL

- Scalable CPU options with 8th generation Intel® Core™ i7/i5/i3 or Celeron® processors with Intel® Q370 chipset
- Feature-rich with 4-CHI PoE (IEEE802.3at compliance), flexible I/O window, two GbE LANs, two COMs, four USB 3.1 Gen 2, two USB 3.1 Gen1 and four SMA-type antenna connector
- Optional MXM 3.1 Type A slot for interconnecting a GPU module to enhance graphical performance
- Offers dual swappable 2.5" SATA HDD drive bay with RAID 0 & 1

Robust, Modular PoE Vision System - IPS962-512-PoE

- Scalable CPU options with LGA1151 socket 7th/6th generation Intel® Core™ i7/i5/i3 or Celeron® processors
- Feature-rich with real-time vision I/O; camera interface includes four-port IEEE802.3 Gigabit Ethernet PoE
- Customizable modules include choices of COM and serial ports
- Features 16-CH isolated DIO
- Supports Trusted Platform Module (TPM) 2.0

Easy-to-Customize, Expandable DIN-Rail Gateway - ICO500-518

- Scalable CPU options with 7th generation Intel® Core™ i7/i5/i3 or Celeron® processors
- Feature-rich, with a variety of COM and LAN ports; one isolated DIO; and PCIe and SIM card slot for communications
- Reliable operation with OVP, UVP, OCP and RPP power protection design
- Wide operating temperature range of -40°C to +70°C (-40°F to +158°F)

Rugged, Flexible 17-Inch Human Machine Interface - GOT3177T-311-FR

- SXGA TFT flat resistive touch with IP65-rated front bezel and 350 nits of brightness
- Fanless design with Intel® Pentium® processor N4200
- Feature-rich with two GbE LANs, two RS-232, two RS-232/422/485, two USB 3.0, two USB 2.0 and two Audiot (Line-out/Mic-in)
- Highly expandable with one full-size PCIe Mini Card slot with SIM, one full-size PCIe Mini Card slot with mSATA, one optional PCIe riser card slot and optional WLAN module and antenna

Industrial-Grade 15.6-Inch Widescreen LCD Monitor - P6157W-V2

- WXGA TFT projective capacitive multi-touch screen with 400 nits of brightness
- NEMA 4/12 (IP65) compliant flat panel monitor
- Features full range screw-type (locked) AC-in or 24V DC-in (optional)
- Multiple signal inputs with VGA, HDMI and DVI