



SMART FACTORY AUTOMATION

KONTRON PUTS KBOX INDUSTRIAL COMPUTER PLATFORMS
TO WORK ON ITS PAPERLESS SHOP-FLOOR

KONTRON TECHNOLOGY CAMPUS	// 3
THE CHALLENGE	// 4
THE SOLUTION	// 4
BUSINESS BENEFITS	// 5



IN ORDER TO ACHIEVE ITS SMART FACTORY OBJECTIVES A MAJOR REQUIREMENT FOR KONTRON HAS BEEN THE SUCCESSFUL IMPLEMENTATION OF A TOTALLY PAPERLESS MANUFACTURING PROCESS FOR ENSURING OPTIMISED PRODUCTIVITY, EFFICIENCY AND QUALITY ASSURANCE.



// KONTRON TECHNOLOGY CAMPUS, AUGSBURG

Kontron is a major contributor to enabling Industrial 4.0 solutions in the Factory and Industrial Automation sector. Furthermore the company practices what it preaches when it comes to applying the latest smart factory techniques. After all, Kontron manufactures products for world leading OEM customers who demand innovative, flexible open architecture Embedded Computer Technology platforms for meeting their Internet of Things (IoT) and Big Data application needs.

The capability to manufacture a wide range of board and system level products that can be easily customised is therefore a prerequisite for Kontron as is the need to guarantee customers the fastest possible time to market. Clearly, this places a particular focus on Kontron's ability to deliver maximum efficiency and accuracy throughout the entire production process.

In response, Kontron's manufacturing facility located at its world class Technology Campus in Augsburg has recently been extensively redesigned around LEAN manufacturing principles. This has entailed a completely new shop-floor, including infrastructure, workplaces and layout, and which now allows Kontron's manufacturing team to ramp up or scale down production within a matter of hours. They can also react to very specific production requirements at short-notice and with unprecedented flexibility.

THE CHALLENGE



Implement a Manufacturing IT Infrastructure which supports:

- ▶ A totally paperless Smart manufacturing process
- ▶ The production of multiple products and configurations
- ▶ Varied, short-notice production runs
- ▶ Increased productivity and accuracy requirements
- ▶ Optimisation of production costs
- ▶ Increased speed to market

In order to achieve its smart factory objectives a major requirement for Kontron has been the successful implementation of a totally paperless manufacturing process for ensuring optimised productivity, efficiency and quality assurance.

With some 50 to 150 components per Bill of Material, contemplating a paper-based manufacturing process would have been extremely inefficient and risk dramatically increasing the potential for human error through the use of old or incorrect documentation.

A paperless online approach was therefore essential, especially so bearing in mind the company's extensive OEM

product portfolio and multiple configuration variances. This subsequently led to the initial deployment of standard PCs on workbenches for allowing online intranet access to all product assembly instructions as well as to the central ERP and production management system. However, it soon became apparent that the PCs were taking up too much precious space and did not offer the processing power, durability, connectivity or scalability required for meeting Kontron's growing and future smart automation production requirements. A new future-proofed PC solution was required.

THE SOLUTION

KBox Industrial Computer Platform

Fortunately, as part of a worldwide embedded computing solutions company actively engaged in the industrial automation sector, Kontron's manufacturing team did not have far to look for their ideal industrial computer platform.

They turned to the Kontron KBox-A101. Powered by dual-core Intel Atom CPU D2550D processors and designed for cost-sensitive automation and industry computing tasks, the highly compact KBox A-101 stands out with its maintenance-free design. It features an integrated solid-state drive (SSD) with up to 64 gigabytes capacity for delivering rugged and fast storage capacity for the Linux operating system and data.

Furthermore, the fanless (no moving parts) KBox-A101 is IoT ready and supports a broad range of industrial interfaces including DisplayPort, two x Gbit Ethernet, two USB 2.0 and two USB 3.0 ports, as well as optional CAN bus and/or Profibus interfaces. Legacy equipment can also benefit from the RS232 serial interface while for wireless connection to the cloud or the local network, the K-Box systems can be equipped with LTE (4G) and GSM (2G) or Wi-Fi with two external antenna connectors ensuring high signal quality.

For easy implementation on different workbenches and mobile test racks, diverse mounting options are available including desktop, horizontal wall-mount, booksize or DIN RAIL. Also important for use in harsh environments is an extended temperature range (-10 °C to 60 °C) and shock resistance up to 15G.



KBOX SUPPORTS KONTRON'S PAPERLESS MANUFACTURING WITH:

- ▶ High processing performance
- ▶ Comprehensive and diverse connectivity options including all necessary I/O ports
- ▶ Small form factor
- ▶ Fanless unit "wartungsfrei", no moving parts
- ▶ Easy implementation on different workbenches and mobile test racks
- ▶ Easy device management in existing ERP IT environment

BUSINESS BENEFITS

Multiple KBox units have been installed on every mobile workbench and test rack to allow factory operatives easy online access to all relevant and latest document versions covering the entire production process including assembly and test instructions. In addition, the KBox system acts as a control unit for the factory's assembly line testing equipment, performing online production monitoring and data collection to manage quality control, workflow and work order status. The system aggregates data and provides factory personnel with actionable real-time information on exact status and pending requirements for each product undergoing assembly.

In the near future, to realise further productivity gains, Kontron will leverage the wireless connectivity included as standard with KBox to capture data from the mobile carts used to manoeuvre components, modules and part assembled systems throughout the manufacturing facility. Data captured from sensors will automatically communicate the contents of each cart to show product descriptions, part numbers etc. on the KBox systems.

Crucially, Kontron's adoption of a paperless manufacturing process has extended the company's capabilities to meet many different OEM customer production requirements simultaneously, balancing the challenge of performing multiple short production runs while maintaining precision and speed. With the help of KBox Industrial Platforms, Kontron can now respond to customer requirements more quickly, allowing greater productivity, reduced production costs and optimised lead times, while at the same maintaining the high standard of quality for which the company is known around the globe.

Walter Gruber, Head of Production and Logistics Germany, commented: "Our continuous improvement program led us to replace standard size PCs located in the shop-floor production area with Kontron KBox solutions. This has made significantly more space available on workbenches while also improving overall system availability and reliability. Our fully ERP supported and controlled processes are now proving to be even safer and far more effective."

Walter Gruber added: "The KBox was an obvious choice and has quickly proved to be an ideal addition to our smart factory set up for now and the future thanks to its rugged and compact design, fanless operation, high performance available I/O ports and wireless connectivity. Being maintenance-free is also a major advantage."

About Kontron

Kontron, a global leader in embedded computing technology and trusted advisor in IoT, provides a complete and integrated portfolio of hardware, software and services. Kontron creates many of the standards that drive the world's embedded computing platforms, bringing to life numerous technologies and applications. The result is an accelerated time-to-market, reduced total-cost-of-ownership, product longevity and the best possible overall application with leading-edge, highest reliability embedded technology.

Kontron is a listed company. Its shares are traded in the Prime Standard segment of the Frankfurt Stock Exchange and on other exchanges under the symbol "KBC".

For more information, please visit: www.kontron.com



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