



## Taking control

Robot manufacturer strengthens global reputation for quality with Kontron motherboards.

## KUKA AG

Augsburg, Germany

### Project:

KR C4 robot control units

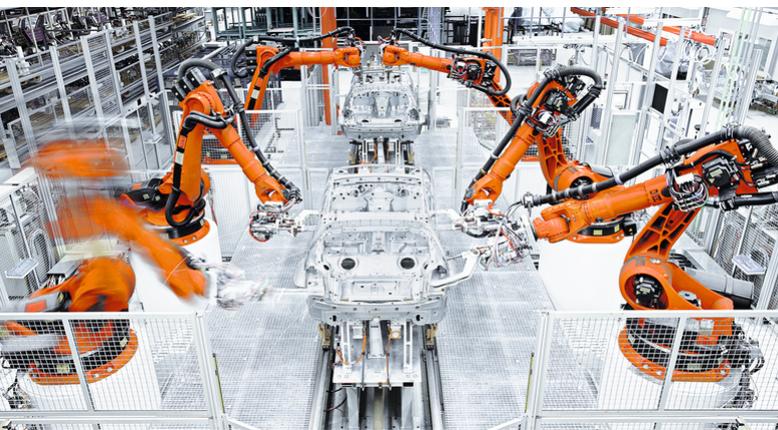
### Kontron Platform:

Kontron Motherboard

[www.kuka.com](http://www.kuka.com)

# KUKA

KUKA is a global automation corporation with sales of around 4 billion euro and around 15,000 employees. The company is headquartered in Augsburg, Germany. As one of the world's leading suppliers of intelligent automation solutions, KUKA offers customers everything they need from a single source. From robots and cells to fully automated systems and their connectivity in markets such as automotive with a focus on e-mobility & battery, electronics, metal & plastic, consumer goods, e-commerce, retail and healthcare.



## Introduction

KUKA offers industrial robots in a wide range of versions with various payload capacities and reaches for almost any application. Its range of production machines, for example, allow the integration of standardized systems and components into customized production processes. Increasingly, these are being joined by new markets with industries such as dairy farming, hazardous waste management, and even 3D printing turning to robotic automation. KUKA can also advise, plan and develop the appropriate processes for individual customer factories - depending on the requirement the company will provide individual components, cells or complete turnkey systems.

Kuka has been using motherboards, which also come from Augsburg, for many years. The long-standing partnership began with Fujitsu and was continued by Kontron after the acquisition of the successful industrial motherboard business in September 2019. The acquisition

of products, extensive IP (design-to-cost, design-to-manufacturability, design-to-testability, tools, know how), designed and made in Germany - and above all valuable employees - meant a significant enrichment for Kontron's previous motherboard business and can therefore justifiably be called Kontron Motherboards 2.0. Kontron's Product Center Boards is in Augsburg, just like KUKA's headquarters.

## Project requirements and Challenges

Founded 125 years ago in 1898, KUKA's involvement with robotics goes back more than 50 years - including in 1973 the launch of the world's first industrial robot with six electric motor-driven axes and in 1996 the first PC-based robotic controller.

However, the dawning of the new Millennium saw more and more companies looking to KUKA for solutions to address an ever-growing array of novel applications. At the same time, the company recognized that to satisfy both growing market demand and the increasingly sophisticated expectations of its customers, the embedded motherboard at the heart of each robot's central 'nervous system' was mission critical. Moving forward, motherboards needed to ensure the highest level of controller reliability and performance, as befitting a market leader at the forefront of innovation in robotics and automation.

KUKA therefore searched the market for a new solution that would not only help deliver the cost-effectiveness and speed to market afforded by its previous motherboards, but also maximize the reliability, performance, scalability, and longevity of its controller modules.



## Kontron: Value Added

- › Kontron embedded motherboards are consistently designed for operation in an extended temperature range (Standard: 0 to 60 ° C). If required, our embedded motherboards can also be manufactured for even wider temperature ranges. For most systems several different cooling options are available to fit perfectly with the respective application.
- › Robustness and suitability for continuous operation: For decades not only our embedded motherboards, but all of our embedded systems have been designed for consistent continuous operation, delivering significantly lower service and maintenance costs.
- › Their long-term availability - typically minimum seven years for Kontron industrial motherboards - matches the demand of our customers. A so-called longevity plus program supports further prolongation of the lifecycle.

## The Solution

KUKA turned to global embedded computer solutions manufacturer Kontron and its wide range of ruggedized, PC standard industrial-grade motherboard products. The specialized yet standard form factor motherboards impressed KUKA with their rock-solid reliability, even when in permanent use in critical environments where there would be extended temperature ranges. Kontron's fit-for-purpose motherboards were seen to ensure performance is never compromised.

Furthermore, Kontron had the scale and supply chain in place to keep pace with future demand as well as the technical capability to customize its standard Intel-based models as necessary.

The rest as they say is history. For almost two decades – and counting - hundreds of thousands of Kontron's motherboards have been supplied, meeting KUKA's exacting requirements while providing the consistency of having the same standard size ATX form factor footprint.

Initially, Kontron Intel Pentium based motherboards were embedded in KUKA's KR C2 robot controller launched in 2004. Four years later a further Kontron motherboard solution was specified. This was for KUKA's game-changing KR C4 controller and which over the prevailing years, along with the KR C4 Compact, has seen the use of four motherboard platform generations leveraging the very latest Intel multi-core processor technology available at the time.



The KRC4 robot controller has proved to be a game-changer by pioneering the integration of four control functions in one. By combining Robot Control, PLC Control, Motion Control and Safety Control with a shared database and infrastructure, integration costs were reduced along with maintenance and servicing. At the same time, the speed to market, long-term efficiency and future scalability of the systems was increased – thanks to common, open industry standards.

## Results

- ▶ All KR C4 robot control units by KUKA are populated by a Kontron Motherboard
- ▶ During 20 years of cooperation more than 500k motherboards – made in Germany – have been shipped by Kontron
- ▶ Consistent reliability and performance helped maintain a trusted brand

KUKA's long partnership with Kontron is a testament to the trust it places in Kontron's products which are at the very heart of every robot controller. During this time, just four standard motherboard products – spanning several generations of Intel processors – have been specified along with the required modifications, such as voltage control and additional Ethernet ports. This underscores the comprehensive features, flexibility, quality and longevity of Kontron embedded products.



With customized versions of Kontron's cutting-edge motherboards at the heart of their systems KUKA quickly began to experience a remarkable transformation. The reliability, scalability, and high-performance computing capabilities of our motherboards have enabled them to consistently deliver exceptional results.

Peter Hoser, Kontron's Head of Product Center, Motherboards



Kontron has been a strategic supplier to KUKA for many years with several mainboards for the various control cabinets of the KUKA robots and has proven to be a reliable and fair partner even in the chip crisis of 2021 and 2022, playing a major role in securing KUKA's supply chains and keeping production running.

Gizella Corradi, Material Group Manager Cables, EMS and PC Components, Global Sourcing R-GS, KUKA Deutschland GmbH



## Benefits

- ▶ Ruggedized standard form factor motherboard design
- ▶ Proven reliability and longevity
- ▶ High performance and scalability
- ▶ Cost-effectiveness and speed to market
- ▶ Strong supply relationship with Intel
- ▶ Engineering and customization support

As a leading manufacturer of robots, KUKA continues to rely on the strengths of Kontron motherboards which are made in Germany and assure the highest quality and reliability, along with long-term availability and lifecycle management.

In summary, Peter Hoser asserts: *"These qualities are matched by our global logistics and engineering support which have combined over the past 20 years to create a strong and trustworthy partnership with KUKA. One that does not shy away from any challenge in a global supply chain and a tough competitive environment. It is this distinctive team spirit between the employees of both companies that inspires and guarantees success."*



For further information:

[www.kontron.com/en/products/boards-standard-form-factors/motherboards/c90377](http://www.kontron.com/en/products/boards-standard-form-factors/motherboards/c90377)



## About Kontron

Kontron is a global leader in IoT/Embedded Computing Technology (ECT) and offers individual solutions in the areas of Internet of Things (IoT) and Industry 4.0 through a combined portfolio of hardware, software and services. With its standard and customized products based on highly reliable state-of-the-art technologies, Kontron provides secure and innovative applications for a wide variety of industries. As a result, customers benefit from accelerated time-to-market, lower total cost of ownership, extended product lifecycles and the best fully integrated applications.

For more information, please visit: [www.kontron.com](http://www.kontron.com)

## About the Intel® Partner Alliance

From modular components to market-ready systems, Intel and the over 1,000+ global member companies of the Intel® Partner Alliance provide scalable, interoperable solutions that accelerate deployment of intelligent devices and end-to-end analytics. Close collaboration with Intel and each other enables Alliance members to innovate with the latest IoT technologies, helping developers deliver first-in-market solutions.

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