

5G MPN FOR FLEXIBLE PRODUCTION USE CASE



THE NEED FOR 5G IN PRODUCTION

The manufacturing industry spans a broad range of economic activities—from raw material processing and component fabrication to the final assembly of consumer, industrial, and high-tech products. As a cornerstone of global economies, this sector is critical to driving **innovation, competitiveness, and job creation** across verticals such as automotive, electronics, pharmaceuticals, and consumer goods.

Now, with the emergence of the **Industry 4.0**, the manufacturing world is undergoing a profound transformation. Digitalization, intelligent automation, and connected systems are reshaping how factories operate. At the core of this transformation is **5G technology**, which brings the high bandwidth, ultra-low latency, and massive device connectivity needed to support a new era of **intelligent and flexible production**. Main challenges and motivations are:

- **Limited mobility and flexibility** due to fixed copper or fiber cabling
- **High costs** and downtime when reconfiguring production lines for new models or devices
- Shared factory network may become **congested** due to multiple users and applications

BUSINESS BENEFITS

60%
reduction in CAPEX
vs. cabling

70%
faster deployment
vs. ports & cabling

90%
faster firmware
rollouts

40%
lower cost
vs. extending Wi-Fi

KONTRON'S 5G SOLUTION FOR FLEXIBLE PRODUCTION

Kontron delivers a robust and secure **end-to-end 5G private network solution**—combining our carrier-grade **5G Core software**, industrial **MEC/Edge servers** (like the **ME1310**), and integration with **5G RAN and device ecosystems like Kcell GW, 5G M.2 modules and other industrial PC and appliances**. Our 5G platform enables seamless, real-time communication between machines, sensors, robotics, and human operators—providing the foundation for **agile, data-driven manufacturing environments**.

We already have a **commercial use case** running successfully at the **Kontron Augsburg production facility**, demonstrating the tangible benefits of our solution in a real-world industrial environment.

With Kontron's 5G solution, manufacturers can address the following cases:

USE CASE ▼	CHALLENGES AND LIMITATIONS ▼	KONTRON 5G MPN BENEFITS ▼
Replacing cables	Reconfiguring fixed production booths for a new product assembly.	Automated and flexible mobile booths are eliminating costly cable infrastructure, while enabling rapid reconfiguration of production machines, with instant network connectivity as soon as the power is connected.
Introducing new devices	Introducing new devices is time consuming, requires additional wiring, and network configuration.	Simply inserting a SIM card or scanning an eSIM QR code adds a new device with a predefined profile without the need for additional network modifications or wiring.
Uploading software	Connecting numerous devices and simultaneously uploading large files for the initial software installation.	Enabling parallel transfer of large volumes of data to multiple electronic devices for software upgrades, updates, and hatchchecks before delivery across automotive, electronics manufacturing, and QA processes.
Mobility and coverage	Wired networks lack mobility, while wireless alternatives like Wi-Fi fail to ensure coverage across the production facility and the required QoS for business-critical applications, often suffering from interruptions due to unsuccessful handovers and signal blind spots for the AGWs or AMRs.	Surpassing Wi-Fi in coverage range, capacity, and reliability. Delivering consistent and secure connectivity across large manufacturing sites with minimal signal loss, providing a stable platform for critical industrial data and applications.

WHY KONTRON?

Kontron's 5G platform is optimized for **industrial-grade performance**, **low power edge deployments**, and **open integration** with third-party automation systems. Combined with our deep experience in embedded systems, telco software, and industrial computing, Kontron is uniquely positioned to support manufacturers on their **Industry 4.0 and digital transformation journey**—starting with a compact **5G Starter Pack** and scaling to full-factory coverage.

