

FRAUNHOFER INSTITUTE FOR INTEGRATED CIRCUITS IIS

# UWIN – ULTRA LOW LATENCY WIRELESS INDUSTRIAL NETWORK



Numerous industrial automation systems have sensors, actuators and other automation components located on movable subsystems. Tools on robot arms, slide rails and rotary and coordinate tables are examples of such subsystems. They often have to be connected to the overall control system ensuring very short cycle times. The cable drag chains, rotary feedthroughs and slide contacts used for this purpose nowadays have numerous disadvantages. For instance, they limit the motion trajectories of the subsystems, the number of attachable automation components and the opportunities for future retrofits or extensions.

To solve this problem, Fraunhofer IIS is developing a radio technology that is deployable as a wireless extension or even as a substitute for wired fieldbuses. Compared to modern radio technologies, it enables superior real-time signal transmission with extremely short latency, maximum reliability and 30 times more user data per telegram.

## Your benefits

- Greater flexibility through unlimited motion trajectory
- Higher process quality through the use of additional sensors and actuators
- Better investment protection through cost-effective retrofitting and extensibility
- Improved process dynamics and precision through weight reduction of the movable subsystems
- Ease of assembly through smaller form factor

## Technical parameters

- Radio system comprising a gateway with fieldbus connections and several I/O devices
- Isochronous transmission with a minimum guaranteed cycle time of 250  $\mu$ s
- Number of I/O devices per network: up to 80
- User data rate per I/O device: > 1 Mbit/s
- Range: up to 25 m
- Maximum reliability as per requirements in the industrial sector
- Universal applicability (EMEA, US, Japan, China)
- Gateway with PROFINET-IRT interface

## Our services



### What we offer

- Integration of real-time wireless communication system in existing production facilities
- Integration of customized interfaces into gateway and I/O devices
- Customized extensions of the radio technology
- Feasibility studies



### What we are looking for

Partners for pilot projects to test the radio technology in challenging industrial applications

## About us

The Fraunhofer Institute for Integrated Circuits IIS is one of the world's leading research institutions for microelectronic and information technology systems and services. At the division Engineering of Adaptive Systems EAS, researchers are working on the efficient realization of intelligent systems. In addition to the functionally safe and reliable system and circuit design, the main areas of work also include novel approaches to sensor technology, big data analysis and the control of complex automation processes. Tailored to the current and future requirements of the economy, adaptive and robust technological solutions, especially in the areas mobility and industrial automation, are developed.

### **Fraunhofer Institute for Integrated Circuits IIS Division Engineering of Adaptive Systems EAS**

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