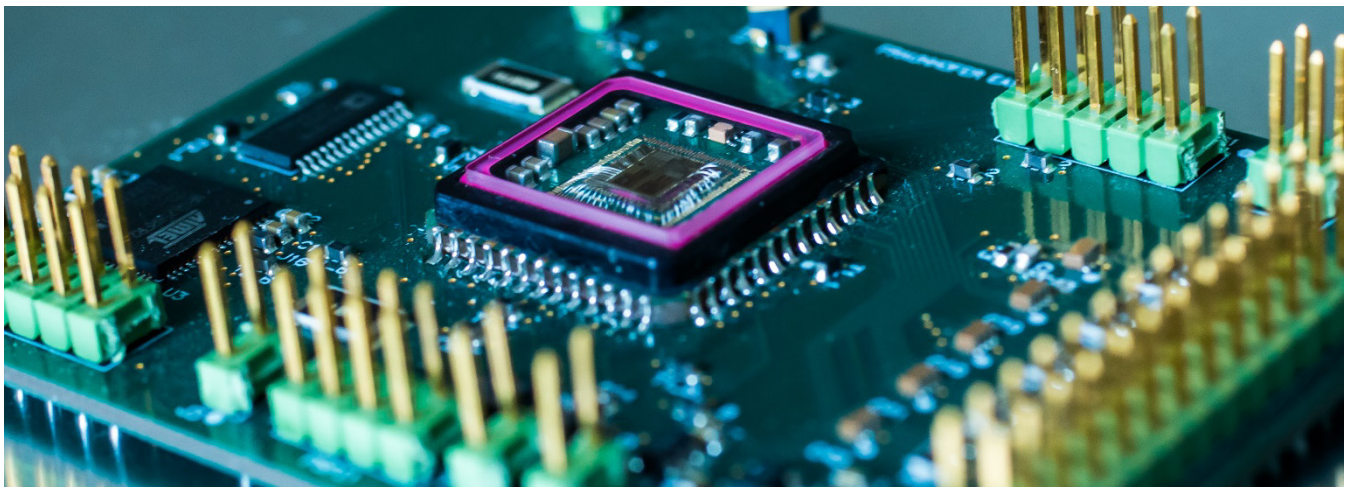
CUSTOMIZED INDUSTRIAL SENSOR MODULES FOR FUTURE IOT APPLICATIONS



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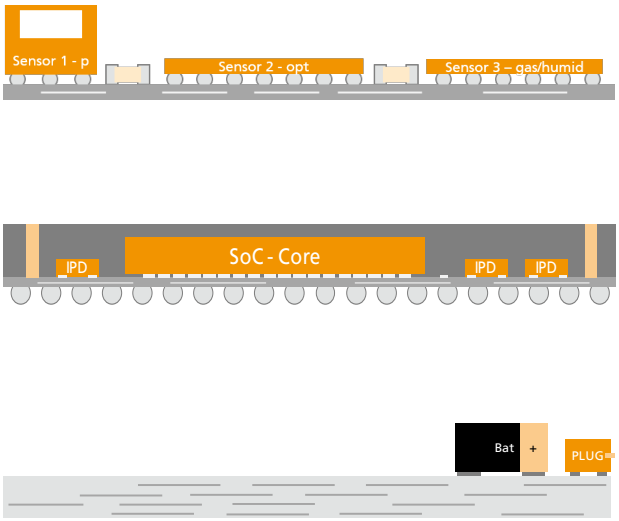
Smart and powerful sensors, which can be adapted flexible to their application are an essential enabler of the Internet of Things. Embedded in new products or used for retrofitting, smart sensors can improve the performance of products or automation processes and even provide access to new resources of revenue.

In practice, however, finding the "right" sensor system for the specific application and in compliance with the technical requirement can be very challenging - especially for small-volume products. The wide range of potential components for a sensor systems is more than confusing and the compatibility of the different modules with each other cannot be assumed. Quick access to the technology, connected costs and time-to-market are further important decision factors that need to be considered.

The Solution:
The "Universal Sensor Platform" (USeP) under development by Fraunhofer and GLOBALFOUNDRIES offers customers a flexible, fast and reliable sensor platform for their products and application. Due to a standardized modular architecture based on a leading-edge low power technology and a wide selection of mutually compatible components, customers can create their individual sensor according to their requirements. The sensor platform combines cutting-edge assembly and packaging technologies with new design methods and an inherent data security and authentication concept.

Main Features:

- Integration of various sensors for different physical parameters possible
- Support of multiple communication standards
- Small form factor
- Low power consumption
- Adequate CPU and memory resources
- Options for integration in fog, edge and cloud computing
- Inherent data security and authentication



Note: drawings not to scale

Top-Level: Sensors and Core Functionality

On the top-level there is the core functionality of the system including a selection of sensors. This level is moderately customizable.

Mid-Level: SoC Core System

The mid-level (system core) consists of a standardized system-on-chip and pre-packaging (up to 90 % standardized).

Bottom-Level: System Board

The bottom-level is the bearing element of the package and includes the power supply and other components. This level is fully customizable.

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