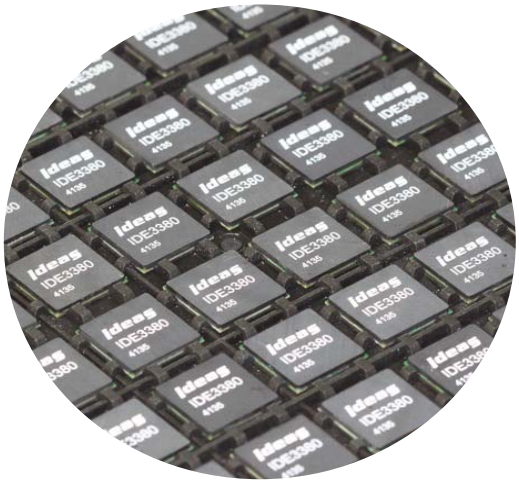
FAST HIGHER PRECISION IMAGING AT LOW POWER CONSUMPTION

Application for manufacturing industry -
Space technology for higher precision measurements



SUMMARY

Imaging sensors and electronics for higher precision measurements in a smaller and lighter package than current technology with extended IoT connectivity capabilities. The readout systems with integrated electronics and sensors can be connected to multiple platforms.

CURRENT SITUATION

The available products are typically used on scientific satellites. Due to the harsh environment in space the electronics must be robust and single point of failures are not allowed. The solutions are equipped with special sensors which are optimized for different use cases. The integrated electronics has proven its strength over decades in space. The special mixed analog and digital design offers Industrie 4.0 IoT applications.

PROJECT DESCRIPTION

A technology transfer project was initiated with the goal of adapting the developed integrated sensor electronics for space technology to applications on ground. The result is a highly flexible modular sensor that readouts single light photons and gamma rays. The solution is based on more than 25 years experience developing integrated circuits for sensors in space. The Integrated Detector Electronics was developed with support from ESA.

PARTNERS

esa space solutions

ideas Integrated Detector Electronics AS

SOLUTION

The transfer of integrated circuits designed for use in space to terrestrial applications is available. With this development the following sectors: energy and environment, security and safety, medical as well as academic and educational.

IDEAS integrated sensor read out electronics are combined with multi channel sensors capable for very sensitive detection. This creates a compact low power unit capable of readout arrays of sensors in customable geometries. The data are available form embedded analog to digital converters and counters. The typical power consumption per channel is in the order of 2mW per channel and tested for running in harsh environments. The customization is straightforward without FPGA. The available test bench allows the validation in industrial applications.

CONTACT

Dr. Ralf Rieger
Integrated Detector Electronics
ralf.rieger@ideas.no

INDUSTRY 4.0 FEATURES

Integrating sensors into ROIC enables quality data to be collected and delivered to the backend analysis frameworks like IoT solutions for data analytics.

STANDARDIZATION APPROACHES

Leveraging of open source Python for Readout, Ethernet and power supply including interoperability standards for semantic device descriptions like the asset administration shell (AAS).