



FRAUNHOFER IMS

INNOVATION ON SILICON

Fraunhofer IMS in Duisburg has more than 30 years of experience and proven expertise in microelectronic circuit design and fabrication.

Our silicon solutions can be found in various application areas like satellites, aircrafts, medical implants, automotive, industrial, automation and consumer electronics.

Full supply chain services provide a seamless path from the first idea through development to production according to highest quality and reliability levels. This includes long term support to satisfy our customers' product lifetime requirements.

Besides internal and external state of the art CMOS facilities, Fraunhofer IMS offers solutions based on various CMOS technologies including Silicon on Insulator CMOS technology supporting up to 250 °C operating temperature.

Our Microsystem Lab & Fab augments these solutions with MEMS based sensor integration and other advanced CMOS post processing options.

Fraunhofer Institute for Microelectronic Circuits and Systems IMS

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Head of Business Segment

Prof. Dr. Rainer Kokozinski

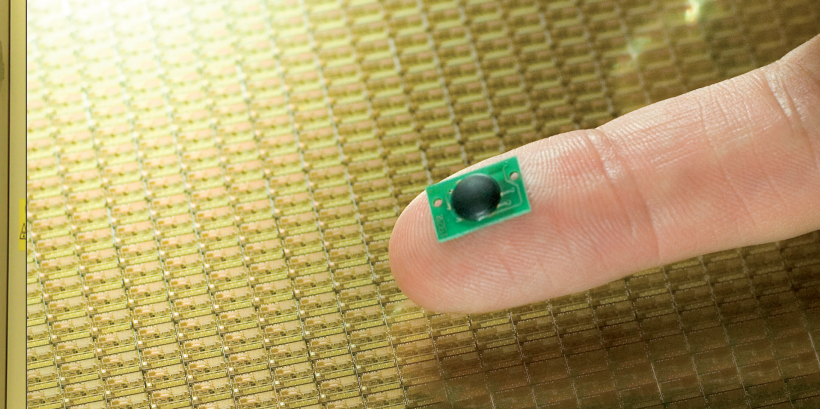
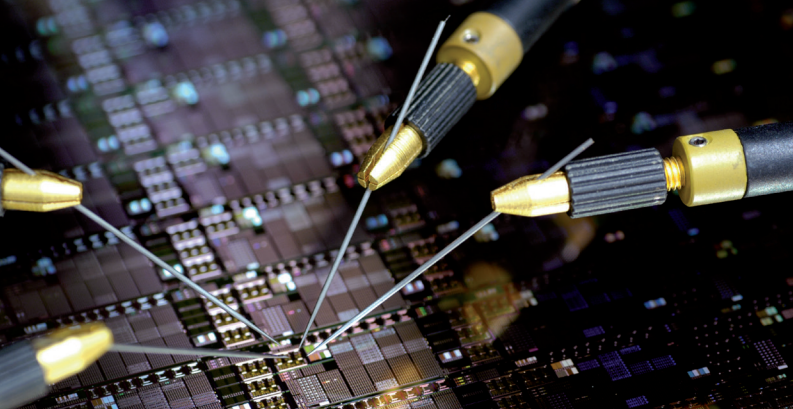
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IC DESIGN & ASICs





IC DESIGN

Analog, digital and mixed signal integrated circuits are core competences of Fraunhofer IMS. Application specific integrated circuits enable our customers to provide cost efficient, powerful and innovative products. We offer the full spectrum from full custom to IP-based ASIC solutions.

Full-custom ASICs are designed to accommodate the specific requirements of the customer, providing a highly optimized product. The IP-based ASIC is based on proven generic components, resulting in lower design time and cost. Using a mix and match approach both design styles can be combined to leverage the benefits of both. The close co-operation with our CMOS production lines provides a seamless and efficient path from concept to series production.

Our long term experience in the development and realization of integrated circuits, starting from concept through design, layout, and fabrication to test and product qualification ensures a short development time and a minimized design risk.

FRAUNHOFER IMS ASIC PROFILE

We develop customized ICs based on our silicon-proven building blocks and innovative technologies:

Sensor Frontends

Inductive and Eddy Current based; Capacitive (e.g. MEMS and Capacitive Arrays); Resistive and Time-to-Digital

Analog

Precision Amplifiers, Filters, Compensated Oscillators, Wide-range Voltage/Current References, EMI protective Circuits and Line Drivers

Signal Conversion

Low-Power ADCs/DACs (e.g. Cyclic, Folding, SAR), High-Precision ADCs (SAR, Sigma-Delta), High-Speed ADCs (Pipeline, Flash, Current Steering)

Digital Signal Processing

Embedded RISC-V μ C and Custom Accelerators, Low-power State-Machines and Command-Sequencers, Key Generation, Silicon IDs and Crypto-Cores, Full Custom Digital Design

CMOS Integrated Sensors

Temperature, Pressure, Optical, Infrared

Low power/Wireless Solutions

Wireless Supply, HF/UHF/SHF Transponders, Near- V_{th} Operation

FULL SUPPLY CHAIN SERVICE

Fraunhofer IMS uses a standardized project control and quality assurance flow tailored for risk control in the ASIC design process to support our first silicon success strategy. This flow is confirmed by ISO/TS 16949 and ISO 9001 certifications.

Cooperation with certification authorities and a proven design flow allow us to develop high reliability designs according to IEC 61508 requirements, utilizing on chip calibration and monitoring mechanisms.

Fraunhofer IMS takes on the responsibility of supplying fully proven and qualified IC solutions on time and at the highest quality.

Our supply chain service also includes lifetime support for extended product cycles. Reference designs have been supplied for over 15 years.