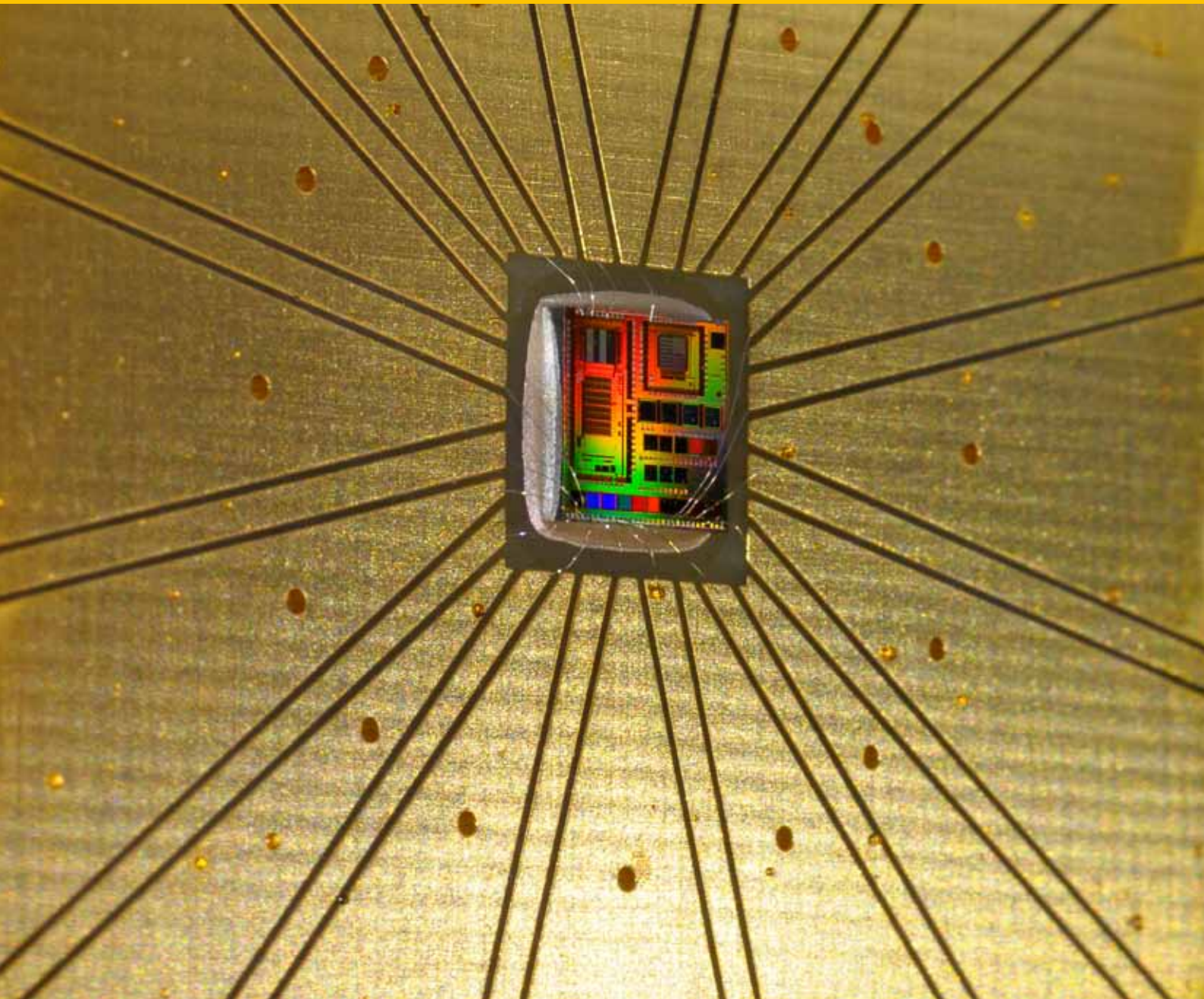


RANGE OF SERVICES AND ACTIVITIES





A WORLD OF RESEARCH: WORKING FOR PEOPLE, SOCIETY AND BUSINESS

IN CLOSE COOPERATION WITH THEIR CUSTOMERS, THE EMPLOYEES OF THE FRAUNHOFER INSTITUTE FOR INTEGRATED CIRCUITS IIS DEVELOP TRENDSETTING TECHNOLOGIES WHICH MAKE LIFE HEALTHIER, SAFER AND EASIER.

FROM FIRST IDEA TO FINISHED PRODUCT

Fraunhofer IIS, which was founded in 1985 and has its headquarters in Erlangen, as well as further locations in Nuremberg, Fürth, Ilmenau and Dresden, is today the largest institute of the Fraunhofer-Gesellschaft. With the development of the mp3 and MPEG AAC audio-coding procedures, Fraunhofer IIS has become renowned all over the world.

In total, 700 of our employees are working in contract research for industry, service providers and public institutions. The budget is covered by contract research, except for a basic funding of less than 25 percent. The Fraunhofer IIS employees conduct task-oriented and result-oriented research, their goal being to implement and facilitate innovations in industry and society.

Fraunhofer IIS conducts research that is targeted towards customers' requirements. Our customers' satisfaction is the decisive indicator of success.

Fraunhofer IIS is a globally appreciated partner in business, and our employees understand the requirements of a company, however large or small it may be. Together they develop solutions which are tailored to the specific needs and give the customer a competitive edge in the marketplace.

SERVICE TAILORED TO THE CUSTOMER'S REQUIREMENTS

You can make use of the following services provided by Fraunhofer IIS:

- **Advising enterprises on technological matters**
- **Customer-specific adaption of Fraunhofer developments**
- **Contract research right up to the production of prototypes**
- **Creating approval certificates, studies and concepts**
- **Services in the field of measuring and test procedures**
- **Provision of cooperative partners and semiconductor manufacturers**

THE INNOVATIONS OF FRAUNHOFER IIS MAKE YOUR COMPANY COMPETITIVE IN THE GLOBAL MARKET



AUDIO AND MULTIMEDIA

THE NEW LOSS-FREE HD-AAC AUDIO CODEC AND THE MULTICHANNEL STANDARD MPEG SURROUND ARE MAKING HEADLINES.

Audio coding

Fraunhofer IIS contributed significantly to the development of the most successful audio formats worldwide – namely mp3 and AAC – and is today the leading research institute in the field of audio coding. The activities of the Audio and Multimedia business sector focus on coding and processing of audiovisual signals and technologies for multimedia systems.

Coding and processing of audiovisual signals

Fraunhofer IIS is the leading provider of MPEG audio coding technologies, for example HE-AAC, HD-AAC and MPEG Surround. Its range is complemented with video coding technologies and semantic audio processing, whose intelligent analysis of audio signals makes it possible, for instance, to automatically extend stereo music sound to surround sound. A team specialized in efficient and performance-optimized implementations provides customers with quick access to software ready for series production, which is available as source code or program libraries for PC platforms, signal processors and microcontrollers. The software of Fraunhofer IIS is used throughout the world in millions of devices, encompassing consumer electronics, mobile communication – and practically every computer.

Multimedia systems

Seamless integration of coding technologies and multimedia technologies is an important core competence of the business sector. Thus, the audio communication system for phone and conference applications allows a notably better sound quality in comparison to conventional systems. The transmission technologies which form the basis for this technology minimize delays and vulnerability to errors, whereas audio codecs such as AAC-ELD guarantee the highest sound quality. For digital broadcasting, there are sender and receiver systems available for all modern standards, including data services like the text-based information service Journaline. Powerful access control systems (Conditional Access) complement our range of products.

*Studio quality –
Any time and any place*

The HD-AAC audio coding procedure exceeds the audio quality of the CD and is compatible with many mobile personal music players and mobile phones. Consequently the HD-AAC technology allows new methods for storage and distribution of music. HD-AAC combines the well-known AAC standard with the new MPEG-4 SLS (Scalable Lossless Coding) standard. This enables a loss-free compression of music in 24-bit quality which is ready for the future.



DIGITAL BROADCASTING

HIGH-FREQUENCY CIRCUITS AND SYSTEMS TAILORED TO THE CUSTOMER'S REQUIREMENTS.

High-frequency systems

The projects range from concept studies and implementation of high-frequency systems right up to product development. Focal points are high-frequency measuring technology and high-frequency system technology, mobile radio systems and antennas.

Developments relating to high-frequency and microwave technology are used in wireless and embedded communication technology as well as in digital broadcasting.

Integrated digital terminals

In addition to the development of systems for broadcasting and communication technology, the conversion into commercially useful results plays an important role. The aim is to develop hardware and software IPs, which can be applied in advanced prototypes as well as in preliminary product development. The development process is aligned with the use of a uniform development environment. When using real-time emulation in programmable modules (FPGAs and embedded controller and DSP cores), this allows all functions and their validation to be fully integrated into one terminal. For integration into end devices, the development also contains the conversion into commercial ICs and reference modules which are based on them. The entire process takes place in close cooperation with industry customers and partners.

Communication engineering

We develop and implement concepts for communication systems, such as broadcasting, wireless communication and navigation. For this purpose, the relevant algorithms for modulation, synchronization and error coding are developed and integrated into modern digital receiver architectures. Cutting-edge tools for software and hardware design support real-time implementation. Applications are real-time broadband receivers for validation of field tests, test and measuring devices, modulators and monitoring devices for transmitters, content servers for multimedia applications, and special service implementations.

Wireless distribution systems/digital broadcasting DVT

Fraunhofer IIS is also working on new technologies for the wireless distribution of digital information or data services. The media information should be transmitted in an efficient, fast and cost-effective manner to many people. Current focal points are, among others, mobile satellite-based systems in the Ka-band ensuring communication even in the event of catastrophe or crisis.

Radio systems for the entire world

The technologies developed at Fraunhofer IIS have established themselves globally in satellite-based and terrestrial broadcasting systems, such as Digital Radio DAB, Digital Video Broadcasting DVB, Digital Radio Mondiale DRM, 1WorldSpace and Sirius XM Radio.

INTEGRATED CIRCUITS AND SENSOR SYSTEMS

INTEGRATION OF COMPLETE SYSTEMS ON A CHIP WITH MINIMUM POWER LOSS.

The key activity within this area is focused on developing integrated high frequency circuits (RF-ICs) and mixed signal ASICs for data transmission, drive technology and sensor signal processing on a wide range of industrial semiconductor technologies. The core competencies here are system-capable analog-to-digital converters as well as interface ASICs for capacitive sensors for the evaluation of the smallest measuring signals (Attifarad range).

Fraunhofer IIS offers solutions for "Embedded Sensor Systems" in the area of intelligent magnetic field and optical sensor systems, color sensor systems and capacitive sensor systems. The patented HallinOne® technology, which was developed at Fraunhofer IIS, is not only capable of capturing the z component, but also the magnetic field components x and y, which are tangential to the chip area.

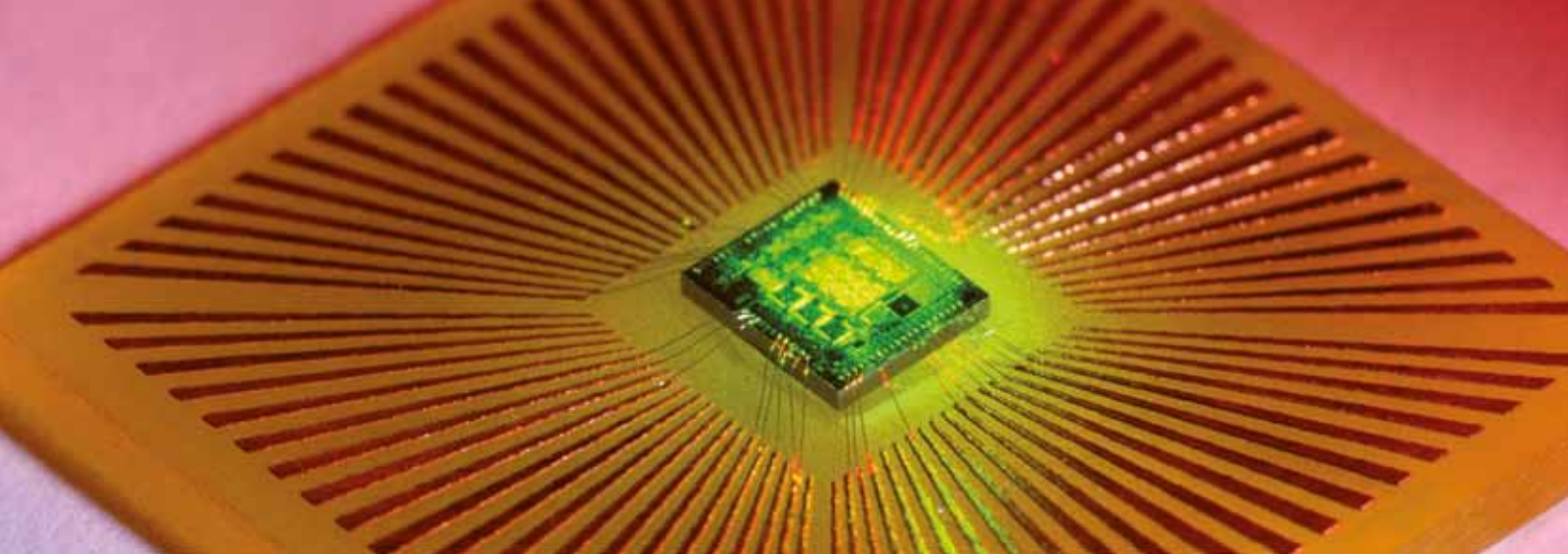
Fraunhofer IIS has been internationally successful as a SERVICE CENTER within the EUROPRATICE project and has proven its competence by supporting hundreds of ASIC developments.

Superlative circuits

Integrated circuits are continually getting smaller, more reliable and more efficient. The first integrated circuits consisted of just a few dozen transistors whereas today's high-end processors contain several hundred million transistors on an area of one square centimeter. Memory chips have already reached the number of one billion transistors on the same area.

Circuit and system design

Fraunhofer IIS works with "Deep-Sub-Micron" standard cells technology, IPCs (Intellectual Property Cores) and embedded software. As they are application-oriented and use state-of-the-art tools and the latest design methods, our system solutions can be obtained from one source. Commercial tools for simulation, synthesis and layout are used for this purpose.



Energy management

The main focus here is developing circuits, systems and software for energy generation from external sources (energy harvesting), wireless energy transmission as well as battery and power management. Typical applications include wireless sensors, mobile end devices, and vehicles with electric or hybrid drives. The aim is to use the existing energy efficiently, thereby enabling maximum duration of operation.

Design automation

The engineers within this area provide highly efficient methods and tools for designing complex circuits and systems in an effective and high-quality manner. This applies to the design steps of modeling, simulation, synthesis, optimization, verification and test generation. The processes developed take into account the impact of manufacturing technologies on the behavior and make verification of complete systems possible. They support the design under boundary conditions, such as minimum power loss or functional reliability, and enable model-based design of sensor actuator systems in machines and production plants. The models, methods and tools created supplement commercial tools and improve application-specific design workflows.

Design processes for the smallest of the small

Nanoelectronic circuits will contain more than a billion transistors. One problem here is the extremely high power density within the circuit, which is already higher than in a fully operational stove top. The high energy consumption is not only regrettable but a significant danger to the circuit itself.

Tests are taking place at Fraunhofer IIS with the aim of finding new basic circuits or switching technologies which reduce energy consumption.



LOCALIZATION AND NAVIGATION

Satellite navigation systems and wireless communication networks

Individual components and system solutions for high-resolution and mobile applications are developed for the satellite navigation systems GPS, GALILEO, GLONASS and EGNOS. For localization in buildings or cities, Fraunhofer IIS provides solutions which are based on wireless communication networks such as DECT, WLAN, and GSM. Logistic objects can be localized and monitored via wireless sensor networks.

Localization for safety

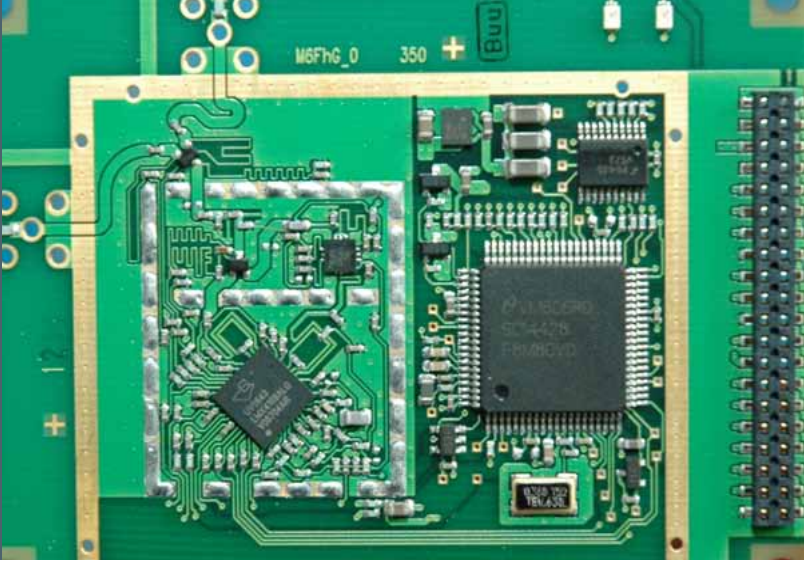
Emergencies and catastrophes, such as traffic and industrial accidents, fires and floods endanger human lives. The effective control of action forces and the knowledge of the current situation as regards danger and location, are the prerequisites for successful, quick and well-targeted responses by fire departments, ambulance crews and other emergency service personnel. New electronically-supported emergency assistance systems can make a contribution here. They localize and monitor the action forces, warn of additional dangers and support the communication between the emergency units. The localization solutions required for this purposes are developed at Fraunhofer IIS.

For applications which require a high-resolution real-time localization, for instance in sports or production, we provide systems on the basis of runtime and angle measurement. For these localization and navigation systems, we offer complete system solutions, integrated hardware components and software solutions for autonomous position calculation.

Furthermore, Fraunhofer IIS deals with the fusion of different localization technologies in order to allow "seamless" navigation – indoor and outdoor – and to further increase the accuracy.

Autonomous systems

In this field of activity, we are developing special solutions for the navigation and positioning of mobile systems (e.g. robots), as well as their autonomous adaption to a changing work environment. For this purpose, the newest technologies are used – such as electronic image processing, image sensor systems, GPS/GALILEO receivers, inertial sensor systems or energy harvesting.



EMBEDDED COMMUNICATION SYSTEMS

Wireless, wired and optical communication technologies

The research field of “Embedded Communication Technologies” provides innovative developments and independent consultancy for all wired, wireless and optical communication technologies. In the future, interactions between different network technologies and network access methods will dominate.

Wireless communication systems

In this field, the researchers are developing communication systems for new information and communication applications. The activities range from antenna technology, complete radio solutions and protocols right up to customer-specific integrated systems. Focal points are RFID, WLAN, DECT and sensor networks; safe telemetry and proprietary wireless close-range communication systems; and energy-saving integrated sender and receiver circuits for long-time operation.

Network access technology

Fraunhofer IIS develops systems to address the rapidly increasing demand for communication of devices within the field of automation technology as well as for private and industrial applications. This encompasses integrated network connections, integrated software solutions for Internet access, hardware-independent system programming and high performance connections to the corresponding Internet provider.

Optical communication

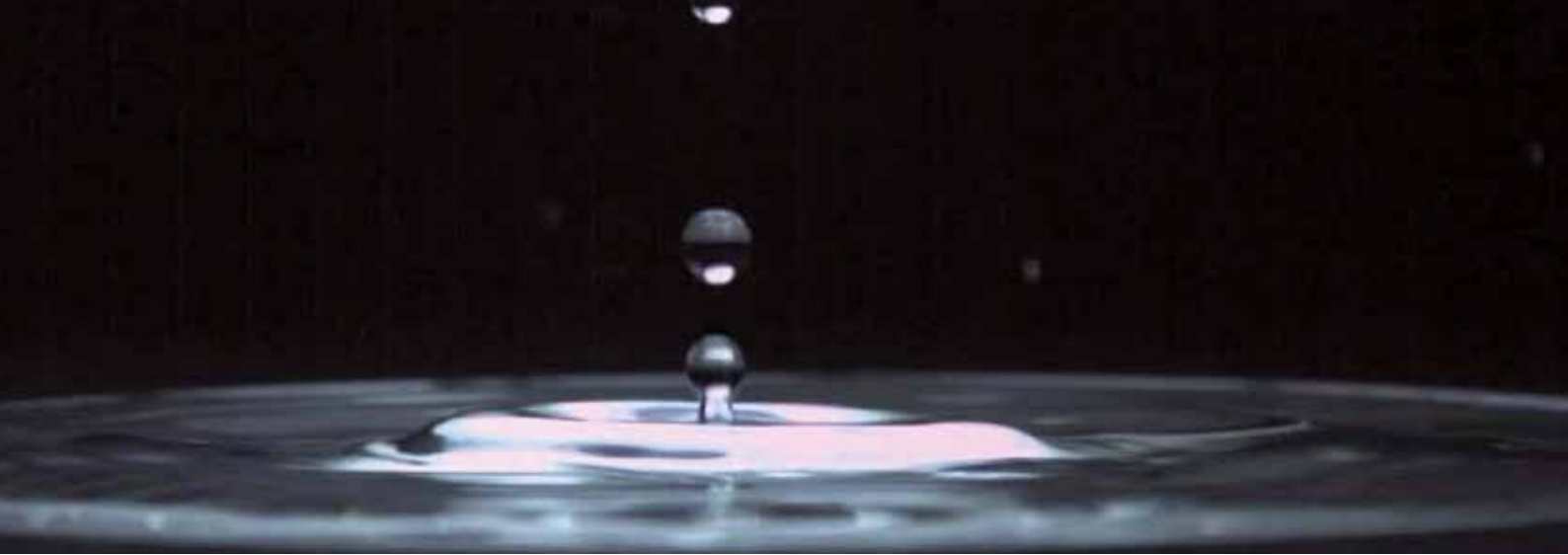
One focal point is the development of sender and receiver ICs for high bit-rate transmission (40 Gbit/s and more). For close-range communication, cost-efficient electrical and optical components are being developed, and optical transmission lines are being planned and implemented. Cost-efficient components for rough wavelength multiplex now allow different services or bidirectional transmission on one multimode optical fiber.

Energy efficiency

Power-loss-optimized digital circuits and systems help to reduce CO₂ emissions. Our commitment to intelligent generation, distribution, and consumption reduce wastage of energy. By means of innovative measuring technologies, embedded systems, sensor-actuator networks and transmission technologies, it is possible to interconnect components and installations of different energy sectors. This interaction offers a further possibility of saving energy.

Power generated by body heat

Making mobile phone calls minus the battery, just by using the heat in your hand? At the moment this is still a dream for the future. However, it might happen one day soon thanks to new technology developed by Fraunhofer IIS. The voltage transformers that we have developed work with minimum input voltages from 20 millivolts. As a result, electronic systems can be run by means of body heat alone.



IMAGING SYSTEMS

FRAUNHOFER IIS IS SETTING INTERNATIONAL STANDARDS.

Camera technology

Focal points of research are high-resolution digital camera systems for industry, film and video technology. The newest technologies are being developed for image acquisition and processing as well as for interfaces.

Digital film and broadcast cameras, high-speed cameras, and intelligent real-time camera developments are significant reference products.

Digital cinema

We develop high-quality cameras as well as storage and data compression solutions for digital cinema. By order of the Digital Cinema Initiatives (DCI), Hollywood, and the Filmförderanstalt (FFA), specifications for the digital cinema were created.

Researchers from Fraunhofer IIS are contributing significantly to the technical implementation and standardization of JPEG 2000 for the compression of high-resolution images, and also take a role in important committees in the field of D-Cinema.

Cognitive systems

Automatic recognition and analysis of face, gesture, objects and scenes are primary issues in the field of computer vision. The detection software can be used in applications relating to image-based content retrieval functions in media archives, market research, and assistance and safety systems. The modular procedures can be integrated in security and communication installations as well as in robotics. Research into the integration of cognitive intelligence complements the camera electronics and evaluation systems.

Industrial image processing and optical test systems

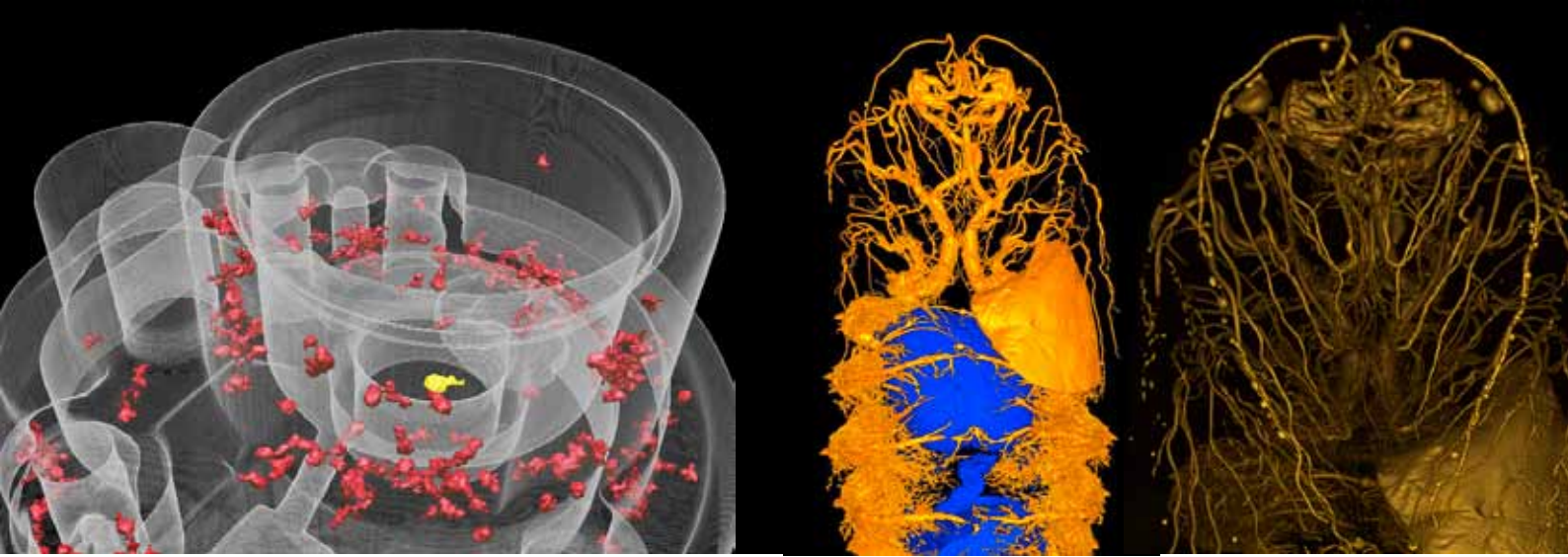
We develop automatic test systems for surface inspection, especially for tires, cavities, surfaces of tubes and elaborately-shaped components, for example, high precision cast parts. Another field of activity concerns the identification of raised lettering and symbols on convex surfaces. We have extensive experience in automated industrial endoscopy and laser scanning for the measuring and evaluation of structured surfaces. Integrated into industrial production lines our test systems meet the highest requirements regarding operational availability and inspection reliability.

Cinema of the future

Improved image quality, greater life-span, easier distribution – the cinema of the future is digital.

At Fraunhofer IIS, we create international standards for this technology in cooperation with European and international committees and associations.

Digital cameras and storage devices as well as tools for post-processing enable workflows which are fit for the future – from production to projection.



X-RAY TECHNOLOGY

THE DETAILED REPRESENTATION OF X-RAY SYSTEMS REACHES SEVERAL 100 NANOMETERS.

Industrial X-ray test procedures

The employees of the Fraunhofer-Institut für Zerstörungsfreie Prüfverfahren IZFP (Institute for Non-destructive Testing) in Saarbrücken and of the Fraunhofer IIS in Erlangen and Fürth cooperate in the field of industrial X-ray test methods.

Our scope of services ranges from the development of complete system solutions to X-ray inspection services..

The fields of activity include two-dimensional and three-dimensional test methods for the inspection of e.g. of food, cast parts and electronic components, among other applications. New techniques for non-destructive testing are also developed, especially for new materials for the aerospace industry. In addition, other non-destructive inspection methods, such as thermography and ultrasonic technologies are also in development in order to achieve optimum test quality by combining different procedures.

Highest-resolution X-ray technology

The aim of the research activities in the field of nanofocus X-ray technology is the development of more efficient X-ray systems with the highest resolution.

The application of fast and high-resolution volume computed tomography will in future allow the non-destructive testing of modern micro systems and other systems with very small structures, such as micro pumps and motors.

XEye X-ray cameras have a longer life

Conventional X-ray detectors are not radiation-resistant and thus have a short life cycle in demanding industrial applications. XEye cameras are protected from radiation by means of suitable optical ray guidance and shielding, and in permanent operation with 225 keV they last over ten years.



MEDICAL ENGINEERING

THE MEDICAL ENGINEERING BUSINESS SECTOR FEATURES TWO FOCAL POINTS: VITAL SENSOR SYSTEMS AND IMAGE PROCESSING.

Sensor systems and signal processing

The principal focus here is on telemedical systems and complete solutions for the care of patients in their homes, encompassing miniaturized portable sensors, tight-fitting sensor networks and software for signal evaluation. Our consultancy services in the field of medical telematics support our customers in all matters of interoperability and international standards.

For this purpose, our competence team offers solutions for secure data transfer to the physician's office as well as medical care providers and hospitals.

Medical image processing

In the field of medical image processing, the main focus lies on the automated analysis of images as decision support for physicians within diagnostic applications. One activity is concerned with the computer assisted microscopy for hematological diagnostic systems.

Developments regarding computer-assisted diagnosis (CAD) of endoscopic or dermatoscopic images can support physicians during the assessment of tissues by providing validated reference images in real-time during the examination.

Wireless multitasking talent

With SomnoSENS, Fraunhofer IIS developed a miniaturized system for the home monitoring of sleep patterns. The system monitors the vital signs ECG, heart rate, respiration at abdomen and thorax, respiration flow, oxygen saturation, pulse wave and movement.



LOGISTICS

MAKE USE OF THE GREAT KNOWLEDGE BASE PROVIDED BY MANAGEMENT AND ORGANIZATION SCIENCES.

Technologies and concepts

The Logistics area of research combines science-based business logistics with the technical engineering innovations of Fraunhofer IIS. Practical further developments are being harnessed for logistics and other business services management.

The portfolio comprises market and location analyses, strategy consulting services, and logistics benchmarking, rationalization and organizational development for enterprises. Furthermore, Fraunhofer scientists design and implement support systems for logistic scheduling.

The associated "Zentrum für Intelligente Objekte ZIO" (Center for Intelligent Objects) has specialized in developing and applying technologies such as RFID, wireless sensor networks and localization systems. The target groups include logistical services enterprises, industrial supply chains, and public institutions with responsibility for transport economics.

A solution for spare parts

Missing spare parts in production or vital infrastructure can have profound consequences. What would you think to possessing a spare part or package with its own intelligence, or maybe even its own Internet address? The parts you are looking for could draw attention online so that waiting times or bottlenecks no longer arise. The ZIO deals with the development and application of so-called "intelligent object" technologies. Objects are given their own intelligence which enables the storage and communication of information on the object, its environment and its history.



PAST SUCCESSES, FUTURE VISIONS

OUR MOTIVATION: RESEARCH WHICH IS USEFUL FOR PEOPLE

Fraunhofer IIS has achieved a high profile and status worldwide by developing the mp3 audio coding procedure. Despite this significant achievement, we have yet to fully explore the potential of our innovations within this area and other technical disciplines to the limit.

Our application-oriented research does not drive technical developments for the simple purpose of development itself. Above all, they are meant to be practical, accessible and rewarding for individuals and businesses. We are committed to a sustainable organization of society, economy and environment. In this context, it is especially important that we implement new technologies in a responsible manner.

A number of awards testify to our successful work. The most important of these include the Deutsche Zukunftspreis 2000 (German award for future-relevant inventions) and inclusion in the Hall of Fame of the Consumer Electronics Association in 2007; both of these honours were bestowed for the development of mp3. Fraunhofer has also achieved for research in X-ray technology and digital broadcasting. Additional indications of our esteemed position are our broad patent portfolio and contribution to numerous international expert panels, professional associations, and program committees.

The awards inspire us to carry on providing high-performance technologies and services in the future. The digital cinema chain from production to projection and practical research in medical technology, as well as navigation and localization via WLAN technology, hold the potential for further awards success in the future.

MILES

2009

The construction works for the Fraunhofer projects in Fürth-Atzenhof started in summer 2009. Four institutions of Fraunhofer IIS will do their research work on these premises. In the test facility "Versuchsanlage Am Vogelherd" in Ilmenau, Fraunhofer IIS is building an antenna tower for digital broadcasting. The "wireless distribution systems/digital broadcasting DVT" project team is conducting research under the supervision of Prof. Albert Heuberger.

2008

Inauguration of the second construction section in Erlangen-Tennenlohe: The highlights of the new building are the sound laboratory, an audio/video recording and post-production studio, and the "cinema of the future", which is equipped with the IOSONO sound field system developed by Fraunhofer IDMT.

2007

20 years of audio coding: In 1987, scientists achieved a breakthrough in the compression of audio signals and could introduce the earliest forerunner of mp3 which worked in real-time.

2005

20th anniversary of Fraunhofer IIS.

2004

The Fraunhofer-Institut für Digitale Medientechnologie IDMT (Institute for Digital Media Technology) emerged from the Arbeitsgruppe für Elektronische Medientechnologie AEMT (Task Group for Electronic Media Technology) in Ilmenau.



TONES

2003

First live transmission of the DRM Campus Radio bit eXpress, a joint project of the Friedrich Alexander University of Erlangen-Nuremberg and Fraunhofer IIS.

2002

Bundling of the previous Fraunhofer IIS activities in Nuremberg and move into the newly-built "research factory" in the Nordostpark of Nuremberg.

Completion of construction and move into the new Fraunhofer Institute building in Erlangen-Tennenlohe.

2001

Visit of the Federal President, Johannes Rau, to Fraunhofer IIS on the occasion of the award of the Deutsche Zukunftspreis (German award for future-relevant inventions).

2000

Federal President Johannes Rau awarded the "Deutsche Zukunftspreis" for the development of mp3 to Fraunhofer IIS: Harald Popp, Prof. Karlheinz Brandenburg and Bernhard Grill received the award on behalf of the 40-member team of developers.

Foundation of the Fraunhofer-Arbeitsgruppe für Elektronische Medientechnologie AEMT (Task Group for Electronic Media Technology) in Ilmenau under the direction of Dr. Karlheinz Brandenburg.

1998

Prof. Dieter Seitzer retires and resigns from the direction of the institute. Dr. Heinz Gerhäuser becomes the director in charge of Fraunhofer IIS.

1995

Foundation of the Center of Applied Sciences in Traffic Logistics and Communication Technologies (Fraunhofer-Anwendungszentrum für Verkehrslogistik und Kommunikationstechnik AVK) in Nuremberg under the direction of Prof. Peter Klaus.

1992

Foundation of the Institution for the Automation of Circuit and System Design (Einrichtung für die Automatisierung des Schaltkreis- und Systementwurfs EAS) in Dresden under the direction of Dr. Günter Elst as a branch office of Fraunhofer IIS.

1990

Foundation of the Institute for Integrated Circuits (Fraunhofer-Institut für Integrierte Schaltungen IIS).

1985

The Center of Micro Electronics and Information Technology (Zentrum für Mikroelektronik und Informationstechnik ZMI) is integrated into the Fraunhofer-Gesellschaft as a Task Group for Integrated Circuits (Arbeitsgruppe für Integrierte Schaltungen AIS).

1984

The Promotion Group for Micro Electronics "Förderkreis für die Mikroelektronik e. V." and the Chamber of Commerce and Industry of Nuremberg for Middle Franconia founded the Center of Micro Electronics and Information Technology (Zentrum für Mikroelektronik und Informationstechnik GmbH ZMI).

Fraunhofer Institute for Integrated Circuits IIS

Am Wolfsmantel 33
91058 Erlangen

Executive Director
Prof. Dr.-Ing. Heinz Gerhäuser
Director
Prof. Dr.-Ing. Günter Elst

Phone +49 9131 776-0
Fax +49 9131 776-2099
info@iis.fraunhofer.de
www.iis.fraunhofer.de

Further locations of Fraunhofer IIS

► Nürnberg

Forschungsschwerpunkte »Lokalisierung und Kommunikation« und »Logistik«
(Main research focus on "Localization and Communication and Logistics")
Nordostpark 93
90411 Nürnberg
Phone +49 911 58061-9190
Fax +49 911 58061-9099

► Fürth

Entwicklungszentrum Röntgentechnik EZRT
(Development Center for X-ray Technology)
Projektgruppe Ultrafeinfokus-Röntgentechnik
Dr.-Mack-Straße 81
90762 Fürth
Phone +49 911 5 80 61-7500
Fax +49 911 5 80 61-7599

► Dresden

Institutsteil Entwurfsautomatisierung EAS
(Department of the Institute for Design Automation)
Zeunerstraße 38
01069 Dresden
Phone +49 351 4640-700
Fax +49 351 4640-703
info@eas.iis.fraunhofer.de
www.eas.iis.fraunhofer.de

► Ilmenau

Forschungsgruppe Drahtlose Verteilsysteme/
Digitaler Rundfunk DVT
(Research Group for Wireless Distribution Systems/Digital
Broadcasting DVT)
Helmholtzplatz 2
98693 Ilmenau
Phone +49 3677 69-4280
Fax +49 3677 69-4282
projektgruppe-dvt@iis.fraunhofer.de

We are in close collaboration with the following institutions:
Fraunhofer-Institut für Digitale Medientechnologie IDMT
(Fraunhofer Institute for Digital Media Technology)
Ehrenbergstraße 31
98693 Ilmenau
Phone +49 3677 467-0
Fax +49 3677 467-467
info@idmt.fraunhofer.de
www.idmt.fraunhofer.de

Fraunhofer USA, Inc.
Digital Media Technologies*
100 Century Court , Suite 504
San Jose, California 95112
www.dmt.fraunhofer.org
Phone +1 408 573 9900
press@dmf.fraunhofer.org

* Fraunhofer USA Digital Media Technologies, a division of Fraunhofer USA, Inc., promotes and supports the products of Fraunhofer IIS in the U.S.

Fraunhofer IIS is a member of the Fraunhofer Group for Microelectronics and guest member of the Fraunhofer Groups for Information and Communication Technology, and for Defence and Security.

Fraunhofer-Verbund Mikroelektronik
(Fraunhofer Group for Microelectronics)
SpreePalais am Dom
Anna-Louisa-Karsch-Straße 2
10178 Berlin
Phone +49 30 6883759-6101
Fax +49 30 6883759-6199
info@vue.fraunhofer.de
www.vue.fraunhofer.de

Fraunhofer-Verbund Informations- und Kommunikationstechnik
(Fraunhofer Group for Information and Communication
Technology)
Friedrichstraße 60
10117 Berlin
Phone +49 30 7261566-0
Fax +49 30 7261566-19
presse@iuk.fraunhofer.de
www.iuk.fraunhofer.de

Fraunhofer-Verbund
Verteidigungs- und Sicherheitsforschung
(Fraunhofer Group for Defence and Security)
Eckerstraße 4
79104 Freiburg
Telefon +49 761 2714-351
Fax +49 761 2714-400
www.ws.fraunhofer.de

DIE FRAUNHOFER-GESELLSCHAFT



Fraunhofer-Gesellschaft carries out application-oriented research for the direct benefit of enterprises and for the benefit of the society. Contractual partners and clients include industrial and service enterprises as well as public authorities. Research projects which contribute to innovations in the area of public demand and in the economy, are carried out on behalf, of and supported by, ministries and authorities on both federal and state level. By providing technology and system-oriented innovations for their customers, the Fraunhofer Institutes contribute to the competitiveness of their region, Germany and Europe as a whole. The focus here is on mirroring a society trend informed by notions of efficiency, social justice and environmental sensitivity.

Fraunhofer-Gesellschaft provides opportunities for professional and personal progress towards challenging positions at its own premises, in other fields of science in the economy and in society. Fraunhofer-Gesellschaft currently runs 80 research facilities – 59 of them institutes – at more than 40 locations all over Germany.

About 17,000 employees (men and women), the majority with a natural science or engineering science degree, deal with the annual research volume of 1.6 billion euros. More than one billion euros are dedicated to the service type of contract research. Fraunhofer-Gesellschaft earns about two thirds of this service type income through orders from industry and publically-financed research projects. One third is provided by the Federal and State Governments in order to give the institutes the chance to prepare solutions to problems which are likely to affect the economy and society in five or ten years. Branch offices in Europe, the USA and Asia guarantee contact to the most important present and future science and economic areas.

Members of the recognized non-profit Fraunhofer-Gesellschaft, which was founded in 1949, include notable enterprises and private sponsors. They contribute to the demand-oriented development of Fraunhofer-Gesellschaft.

*Joseph von Fraunhofer
(1787–1826)*

Fraunhofer-Gesellschaft owes its name to the Munich scientist Joseph von Fraunhofer, who was famous as an entrepreneur as well as a researcher and inventor. By chance, the glazier of humble origin got the opportunity to become an optometrist in the renowned workshop of the design engineer Georg von Reichenbach. His subsequent inventions brought great economic success to the workshops, and Fraunhofer's instruments were soon sold all over Europe. He managed to locate the planet Neptune in 1846 by using a 9-inch refractor he had developed, and also discovered the absorption lines within the spectrum of sunlight – there-after referred to as "Fraunhofer Lines".

Fraunhofer's application-oriented research remains one of the basic principles for modern data transmission, microelectronics, medical engineering and spectrum analysis.

Legal notice

Editor: Marc Briele (person responsible according to the German press law)

Text, concept: Hilmar Fütterer

Text: Patricia Petsch

Layout: Ariane Ritter

Photos: Kurt Fuchs and Fraunhofer IIS,

Kradisch fotodesign

Print: Nova-Druck

Copyright © 2 / 2010 Fraunhofer Institute for Integrated Circuits IIS

**A WORLD OF RESEARCH:
WORKING FOR PEOPLE, SOCIETY
AND BUSINESS**