Press Release

Green, Digital Transformation: Infineon Launches EU Projects for Power Electronics and Artificial Intelligence

- Sustainable products and processes: 130 million euros in research volume in European collaboration with 98 partners
- Gallium nitride chips boost energy efficiency and reduce CO_2 emissions: EU project "ALL2GaN"
- Artificial intelligence strengthens sustainable industry and secure supply chains in Europe: EU "AIMS5.0" project

Villach May 22, 2023 - To tackle the climate crisis, Infineon in Villach is launching two European research projects with enormous thrust: The "ALL2GaN" project is about easily integrated energy-saving chips made of gallium nitride. They have the potential to improve energy efficiency by 30 percent in a wide range of applications and thus save an extrapolated 218 million tons of CO_2 worldwide. The "AIMS5.0" project focuses on artificial intelligence (AI) to create resource-efficient manufacturing across industries as well as optimize supply chain management in Europe. The projects, worth a total of 130 million euros, bring together 98 partners from 18 countries. Both projects will run for three years and are funded by industry investments, grants from the individual countries involved, and the European Key Digital Technologies research program.

With the "Green Deal", the European Union has the goal of making the EU the first climate-neutral continent by 2050. To achieve this, smart, low-emission technologies with a digitally strong, competitive and sustainable industry in Europe are needed more than ever. Research and innovation in pacemaker technologies such as power electronics are crucial catalysts in the implementation of the Green Deal.

Sabine Herlitschka, CEO of Infineon Technologies Austria AG: "Investments in key technologies are essential for achieving the climate targets. This can be achieved through research, cooperation with the best partners and innovations with real impact - as extrapolated here with a savings potential of 218 million tons of CO_2. With these two projects, we are doing just that. Together, we can develop sustainable products and processes faster and make a decisive contribution to decarbonization and digitization. The results strengthen industry and Europe as a location in global competition. They bring more strategic autonomy for Europe and our society, secure supply chains and are a turbo for an energy-efficient future."

New generation of energy-saving chips reduces emissions

The research project "ALL2GaN" (*Affordable smart GaN IC solutions for greener applications),* led by Infineon Austria, brings together 45 partners from twelve countries with

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a total budget of around 60 million euros. The aim is to fully exploit the energy-saving potential of highly efficient power semiconductors made of the semiconductor material gallium nitride (GaN), to integrate them easily and quickly into many applications, and thus to reduce emissions.

GaN chips: Energy efficiency reduces CO_2 footprint
Generating, controlling and using energy efficiently is a decisive lever for CO_2 reduction. The less energy that is wasted, the lower the emissions. Intelligent technologies and new semiconductor materials such as gallium nitride (GaN) play a key role here. They deliver more power in a small space, convert energy highly efficiently and thus minimize the CO_2 footprint in digital devices.

Variable "toolbox" for fast integration
Following the development of cost-efficient GaN chips at Infineon-Villach, the research team is now working on a crucial milestone: the novel GaN power semiconductors will be modular and easily embedded in many applications through the integration toolbox. The research extends from individual chip elements, high-performance GaN modules, to chip designs and novel system-on-chip approaches. The advantage: variably adaptable GaN system solutions mean faster integration into applications, energy efficiency increases, and CO_2 emissions decrease.

Telecommunications, data centers and server farms will benefit from the new, highly integrable GaN chip generation "Made in Europe", as will e-mobility, renewable energies and highly efficient smart grid solutions. Projections show that this new GaN chip generation can reduce energy losses in applications by an average of 30 percent. This is roughly equivalent to 218 megatons of CO_2 saved worldwide.

"GaN technologies are paving the way for applications that drive decarbonization. Applications such as mobile charging, data center power supplies, residential solar inverters and onboard chargers for electric vehicles are at the tipping point," said **Adam White, Division President, Power and Sensor Systems, Infineon Technologies AG**. "With the All2GaN research project, energy-saving chips made of gallium nitride can now be developed even faster and easily embedded in many applications thanks to the integration toolbox. The research project opens up enormous application potential and creates sustainable benefits."

Green Industry 5.0 with Artificial Intelligence
In the second EU research project EU project AIMS5.0 (*Artificial Intelligence in Manufacturing leading to Sustainability and Industry 5.0*), research is being conducted on smart AI technologies for resource-efficient manufacturing in Europe. A 53-partner strong consortium of producers, suppliers, research institutions and AI specialists from twelve countries is thus paving the way for an economical, ecologically sustainable Industry 5.0 and the European Green Deal. The project is worth 70 million euros and is led by Infineon Technologies in Munich.

AI technologies bring efficiency boost

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Efficiency, i.e. doing more with less, is one of the main, economic principles and can be further improved by safe AI methods. More efficiency in processes brings lower resource consumption in manufacturing, better product quality and also robust supply chain management through intelligent networking along the value chain. In line with the Industry 5.0 approach, the skills of employees are being qualified for AI use and young students are already being introduced to the required AI skills in practice by academic partners.

The "AIMS5.0" team is taking a common AI approach across industries and applications for the first time. It is about the development and production of hardware and software components and a secure AI networking platform. The results strengthen manufacturing in mechanical engineering, semiconductors, electronics as well as in the automotive industry and create resilient supply chains in Europe.

"With this project, we are providing the technologies of tomorrow. With AI research, we are supporting a modern and sustainable industry. This benefits the partners directly and subsequently many other manufacturing sectors. It strengthens the entire industry and know-how location as well as the technological sovereignty in Europe," explains **Thomas Morgenstern, Executive Director Frontend Infineon Technologies AG** and adds: "At the same time, the project also develops the AI skills of employees through training and qualification methods and improves human-machine interaction.

Research starts at the Infineon site in Villach
The kick-off event and thus the official start of both pioneering, European projects will take place on May 23, 2023 at Infineon's Villach site.
Both EU projects are co-funded by the KDT-JU (Key Digital Technologies Joint Undertaking) program of the European Union and the participating countries.

Henriette Spyra, Section Head for Innovation and Technology at the Austrian Ministry for Climate Protection: "The two Infineon projects show us very well that in many seemingly specific, individual and technical optimization processes, such as the use of new semiconductor materials for power electronics or the use of advanced AI for the management of complex supply chains, there is enormous potential for achieving sustainability goals. These must be uncovered and implemented. Then these pacesetting technologies can act as 'Tech4Green', as drivers for long-term sustainability transformations."

Yves Gigase, Director KDT JU: "The projects make an extremely important contribution to the implementation of the KDT JU portfolio. They address the top priorities of current European policies, such as the Green Deal. They are about the development of power electronics for energy-efficient applications and European digital autonomy with the introduction of AI in the industrial value chain to increase productivity and more sustainable production. With the European Chips Act, the results of these projects will play an even more important role in many digital applications."

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At a glance: EU research project "ALL2GaN

- Project: "ALL2GaN"- Affordable *smart GaN IC solutions for greener applications*
- Management: Infineon Technologies Austria AG
- Term: three years until April 2026
- Research budget: approx. 60 million euros
- Partners: 45 partners from 12 countries

Austria: Infineon Technologies Austria AG, Fronius International GmbH, KAI GmbH, Silicon Austria Labs GmbH, Graz University of Technology, Vienna University of Technology | **Belgium:** imec, MinDCet NV | **Czech Republic:** Thermo Fischer Scientific, Brno University of Technology | **Denmark:** Aalborg University, Ballard Power Systems Europe | **Germany:** AIXTRON SE, CE-LAB GmbH, Chemnitzer Werkstoffmechanik GmbH, Fraunhofer Gesellschaft (IAF, IMWS, IZM), Heraeus Deutschland GmbH & Co KG, Infineon Technologies AG, IMS Chips, IMST GMbH, NanoWired GmbH, NaMLab gGmbH, Chemnitz University of Technology | **Greece**: Institute of Electronic Structure and Laser, Foundation for Research and Technology - Hellas | **Netherlands:** Applied Micro Electronics "AME" B.V., Nexperia BV, Signify, Delft University of Technology, Eindhoven University of Technology | **Norway:** Delta electronics (Norway) AS | **Slovakia**: Nano Design ltd, Slovak University of Technology in Bratislava | **Spain:** For Optimal Renewable Energy, IKERLAN, University of Mondragon, Premium S.A., Universidad Politécnica de Madrid | **Sweden:** AlixLabs AB, Chalmers University of Technology, Ericsson AB, RISE Research Institutes of Sweden AB, SweGaN AB |Switzerland**:** Attolight AG, Corintis SA, Ecole Polytechnique Fédérale de Lausanne EPFL

At a glance: EU Research Project "AIMS5.0

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Austria: AIT Austrian Institute of Technology, CISC Semiconductor, Infineon Technologies Austria AG, KAI - Competence Center Automotive and Industrial Electronics, PhytonIQ Technology, Research Studios Austria, TTTech Industrial Automation AG, Virtual Vehicle Research, Vienna University of Economics and Business| **Germany:** Infineon Technologies AG, AI Dig+ Solutions, Bayrische Motoren Werke BMW, Cetto, Fabmatics, Fern-Universität Hagen, Institut für Integrierte Produktion Hannover, Fraunhofer Gesellschaft, Hochschule Stralsund, Hochschule Zittau/Görlitz, Infineon Technologies Dresden, Systeme Systementwicklung, Technische Universität Dresden, Universität Lübeck | **France:** Pfeiffer Vacuum, Thales Research and Technology | **Greece:** Idryma Technologies Kai Erevnas, Harokopio University | **Netherlands**: NXP Semiconductors, Philips Consumer Lifestyle, Rijksuniversiteit Groningen, Semaku BV, Signify Netherlands, Technische Universiteit Eindhoven | **Lithuania:** Elektronikas un datorzinatnu instituts Riga | **Poland:** DAC Spolka Akcyjna, Gdansk University of Technology | **Sweden**: Husqvarna, Luleå University of Technology, Stream Analyze, Skandinaviska Enskilda Banken | **Spain:** Goimek S. Coop, Ibermatica, Ideko S. Coop, Soraluce S. Coop, SAVVY Data Systems, Universidad Politécnica de Madrid | **Hungary**: AITIA International, Budapest University of Technology and Economics | **Italy:** Lfoundry, Università degli Studi di Padova, Statwolf Data Science | **Turkey:** SmartUniversal, Tubitak Bilgem AI Institute

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About Infineon Austria
Infineon Technologies Austria AG is a group subsidiary of Infineon Technologies AG, a world-leading provider of semiconductor solutions that make life easier, safer and greener. Microelectronics from Infineon reduce the energy consumption of consumer electronics, domestic appliances and industrial facilities. They make a major contribution to the convenience, security and sustainability of vehicles, and enable secure transactions in the Internet of Things.

Infineon Austria pools competencies for research and development, production as well as global business responsibility. The head office is in Villach, with further branches in Graz, Klagenfurt, Linz and Vienna. With 5,461 employees from 79 countries (including 2,390 in research and development), in the financial year 2022 (ending in September) the company achieved a turnover of € 5.2 billion. With a research expenditure of 585 million euros, Infineon Austria is one of the strongest research companies in Austria.

For more information, visit www.infineon.com/austria

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