

Presseinformation

The energy-saving chips of the future: European research project *PowerBase* launches with Infineon Austria in the lead role

The research project PowerBase is developing the next generation of energy-saving chips and preparing them for mass industrial use in smartphones, laptop computers and many other applications. Coordinated by Infineon Austria, the project's € 87 million volume and 39 partners from nine countries make it the largest European microelectronics research project ever to be coordinated in Austria.

Villach, May 21, 2015 – At an international event this week in Villach, Infineon Austria is hosting the official kick-off of the European research project *PowerBase*, focusing on energy-efficient semiconductor technologies. The project, set to run until 2018, will strengthen and expand Europe's status as a center of expertise for the development and production of innovative power electronics.

The project's research activities will focus on developing the next generation of energy-saving chips (referred to as "power semiconductors") based on new materials such as gallium nitride. These semiconductor devices can convert power far more efficiently than conventional silicon-based chips. Overall research activities in the *PowerBase* project are coordinated on a Europe-wide basis in order to make these new semiconductors ready for mass industrial use at globally competitive cost levels.

"The € 87 million project volume and the participation of 39 partners show the high value the *PowerBase* research activities have for the European semiconductor industry and its success in global competition," explains Sabine Herlitschka, CEO of Infineon Technologies Austria AG. "Based on its worldwide leading competence in power semiconductors, Infineon Austria brings decisive Austrian expertise to project coordination as well as to optimization of energy efficiency in a wide variety of electronic applications."

European Co-Financing

The European Commission's "Europe 2020" initiative sets ambitious goals for innovation, energy efficiency and re-industrialization. Power semiconductors developed and produced in Europe in sufficient quantities and at competitive cost levels are an important contribution to elevating Europe's status as a knowledge-based location for industry. The *PowerBase* project is a private-public partnership in which investments from industry, funding from individual countries and the support of the ECSEL (Electronic Components and Systems for European Leadership) Joint Undertaking are being applied to increase the global competitive strength of the European electronics industry. *PowerBase* is co-

financed by funding from Austria's BMVIT (Ministry for Transport, Innovation and Technology), Belgium, Germany, Italy, the Netherlands, Norway, Slovak Republic, Spain, the United Kingdom and the ECSEL Joint Undertaking.

PowerBase is also an important incentive for Carinthia to additionally strengthen its strategically significant location factors in the high-tech sector. "The project will help secure high-value jobs and create new ones. It will also generate future potentials for the further sustainable positioning of Carinthia in the micro- and nano-technology sectors and in the latest modern manufacturing technologies," says Carinthia's governor Peter Kaiser, adding that the provincial government is completely in favor of this future-oriented project. "In periods as difficult as the present it's all the more important for our province to enhance its profile in international collaborative research and showcase its successful worldwide corporate leaders such as Infineon," the governor observes.

New materials mean less energy loss

Power semiconductors play a key role in power conversion in electronic devices such as smartphones, computers, servers and lighting systems, all the way to photovoltaics. In a charger or power supply they convert line voltage from the wall socket to meet the needs of the respective device. Here the most important prerequisite is keeping the amount of energy lost during conversion (usually in the form of waste heat) to an absolute minimum. With its higher breakdown strengths and faster switching speeds the semiconductor material gallium nitride (GaN) enables additional efficiency increases. There is as yet still no worldwide mass market for GaN-based chips.

Smaller and lighter power supplies

In the future new-generation power semiconductors will significantly reduce the amount of energy lost in power supplies by up to one half. For laptop computers alone the resulting worldwide energy savings are estimated at approximately 1 billion kWh annually, the equivalent of a medium-capacity hydroelectric power plant on the Danube. Furthermore, the energy-saving chips of the future will enable miniaturization in applications. As a result chargers and power supplies will become significantly smaller and lighter, an important step on the way to a laptop power supply the size of a matchbox or conveniently built in to a power plug.

The PowerBase objectives

The *PowerBase* research focus includes intensive material and reliability research to improve the quality and lengthen the service life of GaN-based semiconductors. The optimization of classic silicon materials will be further explored as well. Plans also foresee the establishment of pilot lines for 200mm wafers to manufacture GaN-based power components in a high-volume industrial production environment. The research partners cover the entire value chain of the latest modern power semiconductor products, including substrates, semiconductor development, continuing developments in logistics and automation technologies as well as chip embedding and packaging solutions.

The presence of the project partners together with representatives from the funding sector and politics at the project kick-off, taking place in Villach from May 20 - 22, 2015, illustrates the significance of *PowerBase*. Those in attendance include for example Willy Van Puymbroeck, head of Unit Components, Directorate General "CONNECT" at the European Commission, Andreas Wild, Executive Director ECSEL Joint Undertaking of the European Union, Carinthia's governor Peter Kaiser, deputy governor Gaby Schaunig and Emmanuel Glenck, head of the Thematic Programs unit at the Austrian Research Promotion Agency (FFG).

The research team: 39 partners from nine countries

In alphabetical order: ams AG, Baumann GmbH, BESI Austria GmbH, BESI Netherlands BV, CISC Semiconductor GmbH, Carinthian Tech Research AG, Consejo Superior de Investigaciones Científicas – Instituto de Microelectrónica de Barcelona - Centro Nacional de Microelectrónica, Eltek AS, Epigan NV, For Optimal Renewable Energy Systems S.L., Fraunhofer AGP (*Gesellschaft zur Förderung der Angewandten Forschung*) consisting of FhG-IWMH, FhG-THM and FhG-EMFT, Freiburger Compound Materials GmbH, Fronius Int. GmbH, Greenpower Technologies S.L., HAP Handhabungs- Automatisierungs- und Präzisionstechnik GmbH Dresden, Infineon Technologies AG (with branch sites in Germany, Italy and Austria), Interuniversitair Micro-Electronica Centrum, Ikerlan S. Coop., Kompetenzzentrum Automobil- und Industrieelektronik GmbH, Max Planck Institut für Eisenforschung GmbH (MPIE), memsstar Limited, NaMLab GmbH, NanoDesign, s.r.o., NanoFocus AG, Osram Opto Semiconductors, PacTech - Packaging Technologies GmbH, Plansee SE, Quantemol Limited, Siltronic AG, Slovenska technicka univerzita v Bratislave, SPTS Technologies Ltd, Technical University of Dresden, Trymax Semiconductor Equipment BV, University of Bristol, University of Graz, Universitetet i Oslo, Università degli Studi di Padova

About Infineon Austria

Headquartered in Villach, Infineon Technologies Austria AG is a Group subsidiary of Infineon Technologies AG. Infineon Technologies Austria operates research and development centers in Villach, Graz and Linz, the IT-Services GmbH in Klagenfurt and a sales and distribution management office in Vienna. With over 3,300 employees throughout Austria, of which approximately 1,200 work in research and development, the company achieved sales in fiscal year 2014 (as of the end of September) of € 1.3 billion.

More information available at www.infineon.com/austria.

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