Press release

Key Topic Secure Microelectronics

Increasing demand for tamper-proof electronics

8. October 2025

- **New research approaches are accelerating the development of secure microelectronics**
- **Market for secure microelectronics is growing strongly**
- **Growth is being driven by security-related applications**

The electronics industry will get together at productronica in Munich from November 18 to 21, 2025. One of the three key topics this year will be secure microelectronics. As the global threat level increases, sensitive information requires increasingly effective protection. This is precisely what benefits the industry, which uses its innovative spirit to develop new microelectronic products for the technology of tomorrow. The conceptual and technical sponsor of the trade fair is the VDMA Productronics department.

Electronic components and systems have to be developed, manufactured and operated in such a way that they work reliably, safely and free from tampering, and that their specifications are guaranteed over their entire life cycle. Secure and tamper-proof components aren't just necessary for machine manufacturers; they are equally essential in critical infrastructures such as medical technology, transportation, energy supply or telecommunications. Secure microelectronics range from secure microcontrollers (MCUs) to transparent supply chains and "security by design". The latest requirements come from laws such as the Cyber Resilience Act and the Trusted Foundry Program.

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Secure electronic components and transparent supply chains more important than ever

A study by Custom Market Insights shows that the market for secure microcontrollers will grow from USD 27.6 billion in 2025 to an estimated USD 80.7 billion in 2034, at a compound annual growth rate of 12.5 percent. The defense sector is an important growth driver. Here, the demand for secure microelectronics is rising sharply due to increasing global conflicts, as the Research and Markets portal reports.

Military-grade components have to withstand extreme environmental conditions such as high temperatures or radiation, and contain many components that are developed with safety aspects in mind.

The example of the USA shows just how important secure electronic components are to government officials: According to the news portal Reuters, in 2024 the government awarded Intel funding of up to USD 3 billion for the development of a "Secure Enclave" to establish trustworthy chip production in safety-critical applications.

Protecting IP as early as the design process

Unlike software, hardware is difficult to protect against unauthorized access: Once manufactured, redesigns are costly – if not impossible. For this reason, open architectures such as RISC-V are increasingly being used. With its "AIRISC" family, for example, Fraunhofer IZM is developing efficient hardware for sensor applications and embedded AI with a particular focus on protecting the IP it contains.

With "security by design", on the other hand, development engineers start with the development of the IP itself. State-of-the-art "SAFE-SiP" processors (Secure Authentication Framework for System-in-Package) offer a mix of components from different manufacturers, which significantly reduces the attack surface due to greater complexity. The development of the "Secure Enclave" is also aimed at this approach: Engineers protect particularly volatile areas within a processor in which sensitive data and calculations are processed in isolation from the rest of the hardware and software.

With regard to supply chain security, the Research Fab Microelectronics reports that the biggest challenge is to ensure trust across different manufacturers and production steps, especially in logistics or testing processes. The EU Chips Act and the IPCEI program (Important Project of Common European Interest) in Europe and the Trusted Foundry Program in the USA are among the measures designed to promote a secure supply chain.

Exhibitors to show their latest innovations

Visitors to productronica in Munich can see for themselves all the latest innovations in the field of secure microelectronics. At the VDMA Special Exhibit area (Hall B2, Stand 461), PhoenixD will be presenting a micro-optical system made of a glass substrate that enables tap-proof telecommunications. Segger Microcontroller will also offer a range of products for the security of embedded systems – in particular for the protection of firmware, IP and secure programming and development. These include “J-Link” debug probes for checking the code or software security libraries such as “emSecure” or “emSSL”.

At the leading trade fair productronica, Bosch Manufacturing Solutions (BMG) will present solutions for safe and reliable industrial production environments, an essential building block for secure microelectronics at the manufacturing level. BMG supports companies primarily with encrypted and secure data communication, real-time transparency and digital monitoring as well as remote maintenance-proof systems with access protection.

VDMA co-exhibitor “Chipdesign Germany” in particular will be taking productronica visitors into the world of secure microelectronics. Their stand will offer a compact insight into the German network for chip development. Visitors will be able to follow the development process of digital integrated circuits – from the idea to the design to the finished hardware. Exhibits such as wafers, masks and chips will make the individual steps tangible and can be viewed directly under a digital microscope.

The accompanying supporting program at productronica will also focus on secure microelectronics in the forums. On Wednesday, November 19, a panel discussion entitled “Microelectronics for security-relevant technologies – what measures are necessary for secure supply chains?” will take place at the Innovation Forum.

productronica: “The pulse of innovation”

In November 2025, the world’s leading trade fair for the development and production of electronics will once again bring together more than 1,400 exhibitors in the exhibition halls in Munich under the motto “the pulse of innovation”. Those interested can obtain first-hand information about the likes of AIRISC, SAFE-SiP and more at the numerous exhibitor stands. In addition, extensive events such as panel discussions, specialist presentations and networking events will help to keep you informed. In Halls B1, C1 and C2, SEMICON Europa also invites visitors to take a closer look at the entire value chain of the semiconductor industry.

More information: productronica.com

productronica
productronica is the world’s leading trade fair for electronics development and production and is supported from a conceptual and technical perspective by the Productronics Department of the VDMA (German Mechanical Engineering Industry Association). The trade fair has been held in Munich every two years since 1975 and the next productronica will take place from November 18 to 21, 2025.

productronica worldwide
In addition to productronica, Messe München also organizes productronica China and productronica India. The network of electronics trade fairs also includes electronica in Munich, electronica China, as well as electronica India, Smart Tech Asia, electronicAsia and LOPEC.

Messe München
As one of the world’s leading trade fair organizers, Messe München presents the world of tomorrow at its around 90 international trade fairs. These include twelve of the world’s leading trade fairs such as bauma, BAU, IFAT, and electronica. Its portfolio comprises trade fairs for capital and consumer goods, as well as for new technologies. Together with its 1,300 employees in the group and the affiliated companies, it organizes trade fairs in China, India, Brazil, South Africa, Turkey, Singapore, Vietnam, Hong Kong, Thailand, and the U.S. With an international network of affiliated companies and foreign representatives, Messe München is active worldwide. The more than 150 events held annually attract around 50,000 exhibitors and around three million visitors in Germany and abroad. This makes Messe München an important economic driver, triggering purchasing power effects in the billions.
With the LOCATIONS OF MESSE MÜNCHEN, it offers a variety of spaces for a wide range of events: These are the exhibition grounds, the ICM – International Congress Center Messe München, the CCN – Conference Center North and the MOC – Event Center Messe München in Munich-Freimann.