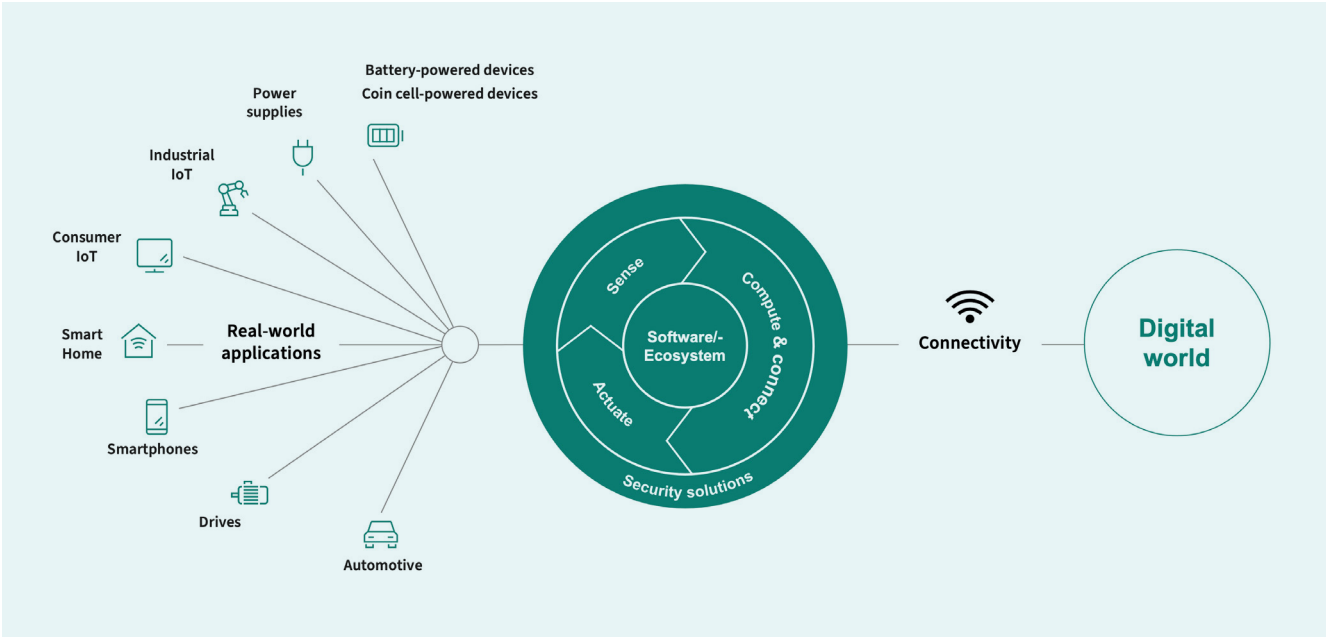
Making IoT Easy

Connected Secure System Solutions

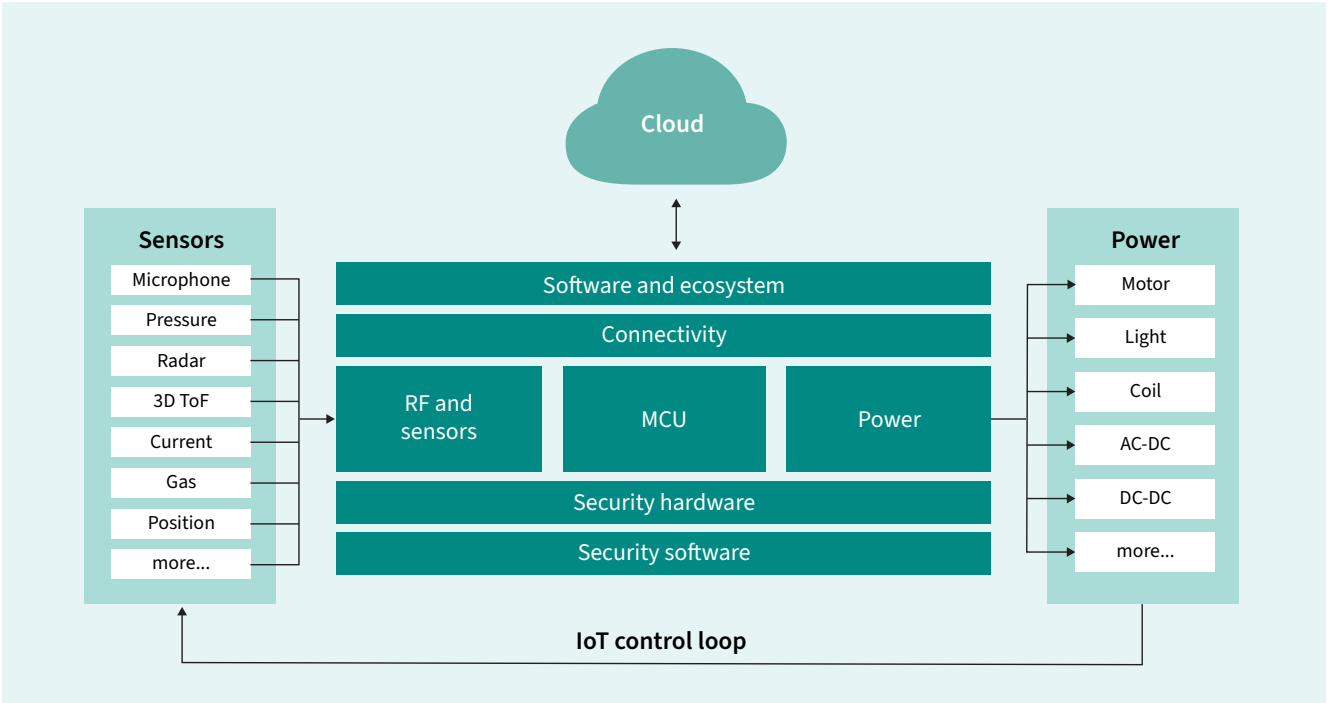
Linking the real and the digital world

Infineon powers the digitalization for IoT with an extensive portfolio of products including sensors, microcontrollers, actuators, wireless connectivity, and security to link the real and digital world. With robust software development tools and an extensive partner ecosystem, you can easily bring your IoT products to market.



Build any IoT application with Infineon's extensive portfolio

With over 15,000 products, Infineon's product portfolio gives you one place to get all the products you need for your IoT application. Products are supported with development boards, evaluation kits, software, and design tools to make IoT work!



Accelerating IoT development with system solutions

By combining a comprehensive IoT portfolio with deep system expertise, Infineon delivers solutions that let you build IoT systems faster, with less effort, and better results. As a trusted partner for 8 of the top 10 IoT companies, Infineon leverages over 20 years of IoT leadership, with over 3 billion IoT chips shipped to help you bring your IoT application to market.

With products for key IoT technologies like HMI, wireless connectivity, and security, Infineon delivers solutions that let you focus on your business model, product design, and go-to-market instead of struggling to incorporate multiple technology systems. Our design resources, tools, reference designs, and partners let you jump-start your project and get to production faster.

Below is an example of a system solution for an induction cooktop that incorporates multiple Infineon technologies and services into a reference platform.

Human machine interface
PSOC™ 4100S MAX 5th gen CAPSENSE™ touch and proximity, LED and display control

Low power processing
PSOC™ 62 MCU ultra low power host, dual-core

Wireless connectivity
AIROC™ ultra low power, dual-band Wi-Fi 5 and Bluetooth® 5.4

Security
OPTIGA™ Trust M High-end security controller

Memory
SEMPER™ flash with Quad SPI IC flash SPI/QUAD

Power IC
CoolSET™ quasi-resonant

Current sensor
XENSIV™ magnetic coreless

Microphone
XENSIV™ High-performance digital MEMS microphone

USB serial bridge controller
EZ-USB™

Half-bridge gate driver
EiceDRIVER™ SOI EiceDRIVER™

Linear voltage regulator (LDO)
5 V DC and 3.3 V DC

Digital isolator
Quad channel digital isolator

Power MOSFET
OptiMOS™

Diode
TVS diode for bidirectional ESD protection, CoolSIC™ Schottky diode

IGBT
Reverse conducting R6 650 V, 40 A

Learn more:
Smart induction cooktop webpage | Induction cooktop video

Solving major IoT technology pain points

IoT requires key technical building blocks to create any application including HMI, intelligent sensors, wireless connectivity, security and privacy, edge AI, cloud, motor control, and power. With IoT applications using multiple technology areas, the time and expertise required to implement and integrate these areas together only increases. By providing reference examples that combine multiple technical building blocks, Infineon products and expertise simplify development complexity and get you to market faster.

Human Machine Interfaces (HMI)

The smooth, intuitive experience of a smartphone interface has become the standard that every IoT application is expected to deliver for HMI. With the addition of voice as an HMI, the knowledge and expertise needed to quickly integrate these seamless interfaces into your device only increases. Infineon's deep expertise lets you create HMI solutions like touch control built with CAPSENSE™, which has been used to replace over 6 billion mechanical buttons.

Consumer touch control

Creating a smooth touch interface requires accurate touch detection along with a responsive interface. To prevent false touch detections from ruining the experience, you have to manage noise and electromagnetic interference from other components like the power supply. Infineon's CAPSENSE™ with industry leading signal to noise ratio performance lets you overcome these challenges. Choose from a variety of CAPSENSE™ based kits to quickly prototype your touch solution.

Featured product:
PSOC™ 6 MCU | PSOC™ 4 MCU

Learn more:
Smart home display demo video

Industrial touchscreen

Industrial environments require a touch interface that can perform under extreme conditions created by water and dust, while also accurately detecting touches from operators wearing gloves. Infineon along with partner UICO has created a solution that shows how Infineon's CAPSENSE™ and the technology from UICO can meet industrial touch screen requirements.

Featured product:
PSOC™ 4100S Max MCU

Learn more:
Industrial touchscreen demo video

Human Machine Interfaces (HMI)

Wearables

Capacitive touch sensing has revolutionized user interfaces for modern products in the last two decades and enabled the emergence of several innovative products, including wearable products. With this change, designers need to reduce power consumption and touch-sensor size, all while maintaining an excellent user experience, even under harsh operating conditions. Infineon's PSOC™ 4000T featuring 5th Generation CAPSENSE™ technology gives you best in class low-power capacitive sensing solution with unsurpassed signal-to-noise ratio, liquid tolerance, and multi-sense capabilities coupled with industry leading reliability and robustness.

Featured product:
PSOC™ 4000T

Learn more:
Wearable video

Gesture control

Infineon's gesture control solutions enable developers to create intuitive and interactive user experiences, solving the problem of cumbersome and outdated interface methods that can be frustrating and limiting for consumers. With Infineon's cutting-edge technology, devices can now accurately detect and respond to hand or body gestures, allowing for a more natural and immersive interaction with electronic devices. By integrating Infineon's gesture control solutions, manufacturers can enhance their products with innovative and user-friendly interfaces, setting them apart in a competitive market and providing a more engaging experience for their customers.

Featured product:
PSOC™ 4000T | Radar sensors for IoT

Learn more:
Gesture control demo video

Human Machine Interfaces (HMI)

Presence detection

Infineon's product offering for presence detection, including Wi-Fi, radar, and CAPSENSE™ technologies, helps solve the problem of inefficient and unreliable user interaction by providing accurate and real-time detection of presence and gestures. Infineon's XENSIV™ 60GHz radar sensors detect presence, measure distance, sense gestures, and monitor liquid levels, while CAPSENSE™ technology enables reliable touch-sensing interfaces. By leveraging these technologies, manufacturers can create smart devices that optimize performance, enhance user experience, and reduce energy consumption, making them more efficient, convenient, and eco-friendly.

Featured product:
PSOC™ 4000T | Radar sensors for IoT

Learn more:
Presence sensing

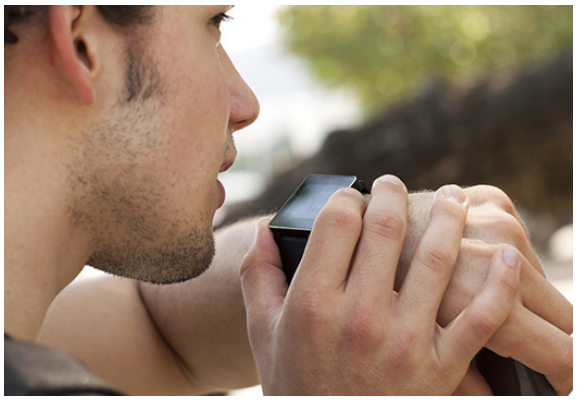
Inductive sensing

Infineon's new and proprietary inductive sensing technology addresses the challenges of traditional inductive sensing approaches that are sensitive to noise and manufacturability concerns. With Infineon's inductive sensing solution, customers can create modern, metal-based, and waterproof designs with sleek form factors, such as metal touch buttons on refrigerators or robust HMI for underwater devices. This technology enables new use cases like touch-over-metal, force touch surfaces, and proximity sensing, providing a reliable and robust solution for customers' inductive sensing needs.

Featured product:
PSOC™ 4000T | PSOC™ 4100T

Learn more:
Inductive sensing web page

Human Machine Interfaces (HMI)



Local voice commands

Modern voice controlled interfaces require high performance microphones along with machine learning for audio processing so that you can do things like detect wake words or process voice command locally. Infineon provides local voice control solutions for low power and constrained edge devices using XENSIV™ MEMS microphones, PSOC™ Edge microcontrollers, and DEEPCRAFT™ Voice Assistant to let you create natural voice interfaces for products. DEEPCRAFT™ Voice Assistant uses AI models for wake words and commands to leverage the advanced, power-efficient audio and AI acceleration capabilities of PSOC™ Edge microcontrollers.

Featured product:
DEEPCRAFT™ Voice Assistant | PSOC™ Edge | XENSIV™ MEMS mic

Learn more:
DEEPCRAFT™ Voice Assistant Product Brief

Graphic display

IoT applications require all types of graphics from simple displays to rich, full graphics. Infineon's PSOC™ Edge microcontroller handles high-performance graphics processing, enabling visually stunning user experiences. It solves the problem of limited resources, allowing customers to develop graphics-intensive applications without sacrificing performance or power efficiency, making it ideal for various industries.

Featured product:
PSOC™ Edge

Learn more:
PSOC™ Edge E84 Evaluation Kit

Intelligent Sensors

Infineon's broad portfolio includes ready-to-use sensor solutions that enable fast time-to-market and reliable functionality. Based on 40 years of experience developing sensor products and a world-leading sensing technology portfolio, Infineon's XENSIV™ delivers exceptional accuracy, best-in-class measurement performance, reliability, field proven quality, system stability, durability, and integrity.

Connected sensors

Infineon's XENSIV™ Connected Sensor Kit (CSK) uses AIROC™ Wi-Fi to let you seamlessly connect to the cloud and quickly visualize sensor data on a cloud dashboard. The CSK includes a range of boards that make it easy to connect XENSIV™ sensors like 60 GHz radar, PAS CO2 gas, and pressure sensors to the cloud.

Featured product:
PSOC™ 6 MCU | AIROC™ CYW43012 | XENSIV™ 60GHz radar | XENSIV™ PAS CO_2 sensor

Learn more:
IoT sensors platform | Connected sensor kit demo video

Intelligent environmental control

Environmental controls rely on static and preset programs that can quickly get out of touch with how people actually use a physical space. Intelligent sensors provide the crucial feedback loop to ensure that environmental systems like air conditioners are used efficiently and for maximum comfort. Infineon's PSOC™ Edge microcontroller and XENSIV™ sensors, solve the problem of inefficient environmental controls by enabling innovative solutions such as presence detection, hand gesture recognition, and continuous CO2 monitoring. This seamless integration allows for occupancy-based climate control, contactless human-machine interaction, and accurate environmental awareness, ultimately enhancing energy efficiency and user convenience.

Featured product:
PSOC™ Edge | XENSIV™ 60GHz radar sensor | XENSIV™ PAS CO2 sensor

Learn more:
HVAC systems

Intelligent Sensors

Crowd control using high accuracy sensing

Presence detection and people counting applications are used to limit overcrowding in public space to maintain health and safety. Infineon's XENSIV™ 60GHz radar sensor combined with software algorithms running on the PSOC™ microcontroller let you track room occupancy, while maintaining user privacy.

Featured product:
PSOC™ 6 MCU | XENSIV™ 60 GHz radar

Learn more:
Smart entrance counter solution

Security and Privacy

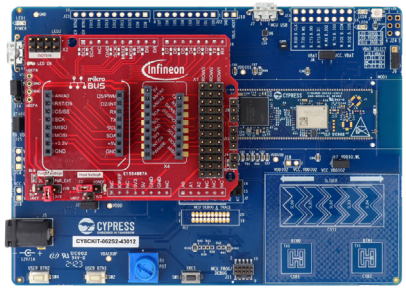
In an increasingly digital world filled with connected devices, device security is key to protecting user privacy and preventing attacks. To address this growing need for secure devices, Infineon security solutions including PSA Certified Level 1 and 2 compliant microcontrollers and EU Cyber Resilience Act (CRA) compliant offerings let you safeguard connected devices and data against escalating cybersecurity threats.

Secured microcontrollers

Infineon's PSOC™ Edge microcontroller tackles IoT security concerns head-on, protecting sensitive data and preventing unauthorized access. It delivers robust security through a Secured Enclave, Infineon Edge Protect Category 4 (PSA level 4 equivalent), and Trusted Firmware-M, ensuring data integrity and confidentiality for a wide range of applications. Leveraging these security features let you ensure the integrity and confidentiality of your data and to protect against potential threats and vulnerabilities.

Featured product:
PSOC™ Edge MCU

Learn more:
PSOC™ Edge video



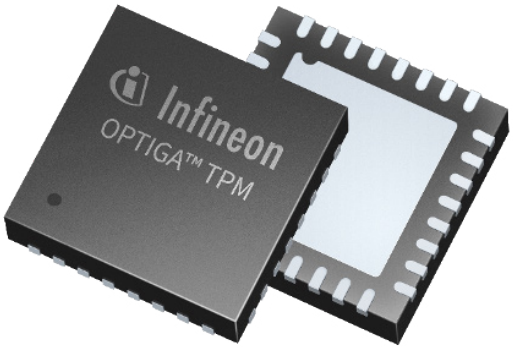
Secure elements

Authentication plays a key role for IoT security, but it can be a challenge to develop and evaluate end-to-end authentication for all your IoT devices. OPTIGA™ Trust M is a standalone secure element that simplifies the integration of security in IoT devices at scale. It can be used with any MCU/MPU or application processor. OPTIGA™ Trust M can handle security-related tasks such as secured authentication, secured communication, secured updates, and access management. This highly modular solution can enhance the security of existing designs without extensive resource allocation and with a faster time to market. OPTIGA™ Trust M is available with multiple provisioning options – from pre-provisioned to custom provisioning.

Featured product:
OPTIGA™ Trust M

Learn more:
OPTIGA™ Trust M GitHub repository

Security and Privacy



Trusted platform modules

OPTIGA™ TPMs protect the integrity and authenticity of IoT devices. With a secured key store and support for a variety of encryption algorithms, OPTIGA™ TPM security chips let you create individual and secured IDs to protect the integrity and authenticity of devices like surveillance cameras and EV charging stations.

Featured product:
OPTIGA™ TPM

Learn more:
OPTIGA™ TPM video | OPTIGA™ TPM Github repository

Active payments: smart wearables and IoT devices

By adding NFC capabilities to wearables, they can be used for payment or to gain access to public transportation and office buildings. SECORA™ Connect X, an all-in-one turnkey NFC solution, supports this trend. The ultra-low-power, boosted NFC solution provides an easy path to EMVCo-based payments and can be combined with NFC wireless charging for smart wearables such as smart rings, wristbands, smartwatches and more making them more user-friendly and convenient.

Featured product:
SECORA™ Connect NFC wearable solutions

Learn more:
Payments in Motion web page

Security and Privacy

Brand protection

Counterfeit trade significantly impacts the revenue of luxury brands and fake medical products threaten patient health and safety. By integrating secured NFC tags into these products, you can easily verify the authenticity of the products using your NFC-enabled mobile device. Infineon's secured NFC tag and OPTIGA™ Authenticate NBT are designed with advanced cryptography features to reliably establish the authenticity of your products while offering resistance against cloning.

Featured product:
OPTIGA™ Authenticate NBT (NFC-I2C Bridge Tag) | OPTIGA™ Authenticate NFC – secured tags | Plain NFC tags

Learn more:
Brand protection and user experience with NFC

Contactless accessory authentication

Effective healthcare depends on the integrity of parts and consumables – covering everything from surgical tools to diagnostic strips. Counterfeit products and unauthorized reuse of consumables may pose serious risks to patient safety and effective patient treatment. OPTIGA™ Authenticate NFC solutions offer enhanced device authentication to protect against counterfeits. These solutions allow manufacturers and users to check whether consumables are authentic before use, thereby safeguarding health and brand integrity. OPTIGA™ solutions help meet expanding regulatory requirements such as the US Protecting and Transforming Cyber Health Care Act (PATCH) and the EU Medical Device Regulation.

Featured product:
Secured NFC tags | OPTIGA™ Authenticate NBT

Learn more:
Accessory authentication video

Security and Privacy

Accessory authentication

Consumer devices, home appliances and industrial machines are constantly exposed to the risk of counterfeit spares and accessories. Fakes can compromise functionality, user safety and – as a result – brand value. Infineon's OPTIGA™ Authenticate S is a fully fledged, turnkey hardware-based security solution for any device authentication challenge offering unprecedented levels of configuration flexibility and a range of hardened security features.

Featured product:
OPTIGA™ Authenticate S | OPTIGA™ Authenticate On

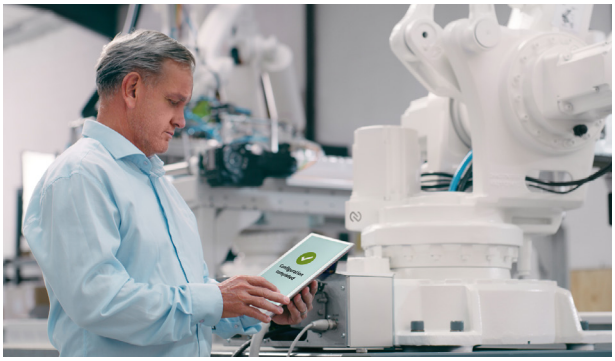
Learn more:
OPTIGA™ Authenticate S Eval Kit | Accessory authentication demo

Contactless authentication and secured configuration of IoT devices

Having the ability to securely communicate with industrial or healthcare devices like sensors, actuators and remote process controllers is critical to taking advantage of machine learning and artificial intelligence to improve efficiency. You also need to be certain that the equipment and parts are authentic and can be trusted to operate as designed. With the increase in connected devices, you are also faced with the challenge of manually configuring the network connection for multiple devices while also securing them against attacks. Infineon's OPTIGA™ Authenticate NBT, is a high-performance NFC-I2C bridge tag designed to enable secured contactless authentication and configuration of headless devices using an ultra-fast, flexible and secure interface that simplifies configuration and safeguards the transfer of sensitive data.

Featured product:
OPTIGA™ Authenticate NBT

Learn more:
OPTIGA™ Authenticate NBT GitHub repository



Security and Privacy

eSIM for cellular IoT devices

OPTIGA™ Connect gives designers a new level of freedom due to its small footprint and outstanding power efficiency, making it especially appealing for size-restricted devices such as wearables and smartphones. It also combines certified, state-of-the-art Infineon security hardware with a fast GSMA-approved operating system.

Featured product:
OPTIGA™ Connect Consumer OC1230

Learn more:
OPTIGA™ Connect

Edge AI

Infineon's Edge AI product portfolio empowers customers to develop intelligent devices and systems by providing optimized hardware and software solutions that address the challenges of real-time data processing, predictive maintenance, and autonomous decision-making. By leveraging Infineon's Edge AI microcontrollers, DEEPCRAFT™ Edge AI solutions, and range of sensors and power management solutions, customers can overcome the complexities of deploying AI models at the edge and create innovative, connected, and secure systems. Infineon's solutions enable customers to unlock new levels of efficiency, productivity, and innovation in various industries, including automotive, industrial, and smart home and building automation.

DEEPCRAFT™

DEEPCRAFT™ Edge AI software and tools let you efficiently bring AI-enabled products to market no matter what stage of the Edge AI journey you are on. The AI Suite ensures low-power consumption and high performance particularly on Infineon machine learning-optimized MCUs. DEEPCRAFT™ Studio, DEEPCRAFT™ Model Converter, and pre-trained DEEPCRAFT™ Solutions, let you quickly and easily add intelligent features to your embedded devices, streamlining your path to Edge AI-enabled products.

Featured product:
DEEPCRAFT™ AI Suite

Microcontroller built for machine learning

Microcontrollers with integrated AI capabilities are central to edge machine learning. These small, low-power devices can run AI models locally, enabling smart features in applications such as wearables, smart home devices and industrial HMI. By processing data at the edge, these microcontrollers enhance the efficiency and responsiveness of machine learning-driven tasks while minimizing the need for continuous cloud connectivity. PSOC™ Edge enables a new generation of responsive machine learning-based user-centric edge devices by providing hardware accelerated neural net compute support, delivering both "always-on" low power and high-performance operation, in a fully integrated microcontroller with right-sized peripherals, on-chip memories and state-of-the-art security.

Featured product:
PSOC™ Edge

Learn more:
PSOC™ Edge video |
ModusToolbox™ Environment software for ML

Edge AI

Audio classification

Infineon's audio classification solutions address the need for low-latency, low-power consumption, and robust audio analysis in various applications, such as smart home devices, wearables, and industrial automation. Customers can leverage Infineon's Machine Learning solutions, including the DEEPCRAFT™ AI Suite of software and XENSIV™ MEMS microphones, to enable efficient and accurate audio classification, overcoming traditional challenges of high-power consumption and large memory requirements. With Infineon's solutions, customers can create innovative products that can detect and respond to audio cues in real-time, such as cough detection in wearables or voice commands in smart home devices.

Featured product:
DEEPCRAFT™ AI Suite | PSOC™ Edge | XENSIV™ MEMS mic

Learn more:
Audio classification

Audio enhancement

Infineon's DEEPCRAFT™ Audio Enhancement is a software solution that enables developers to optimize the performance of voice and audio features using AI models for noise suppression and other critical audio pipeline components including beamforming, acoustic echo cancellation, and dereverberation. AI-powered algorithm innovations are integrated with the advanced, power-efficient audio and AI acceleration capabilities of PSOC™ Edge MCUs.

Featured product:
DEEPCRAFT™ AI Suite | PSOC™ Edge | XENSIV™ MEMS mic

Learn more:
DEEPCRAFT™ Audio Enhancement

Edge AI

Voice assistant

Infineon's DEEPCRAFT™ Voice Assistant offers a cutting-edge voice recognition solution that addresses the challenges of building reliable and efficient voice interfaces, particularly in noisy environments. By leveraging AI-powered noise suppression and acoustic echo cancellation, Infineon's product enables device providers to deliver best-in-class voice products that can accurately respond to commands and provide a seamless user experience. This solution is especially valuable for applications such as wearables, smart home devices, and security cameras, where traditional physical interfaces are being replaced by voice-controlled interactions.

Featured product:
DEEPCRAFT™ AI Suite | PSOC™ Edge | XENSIV™ MEMS mic

Learn more:
DEEPCRAFT™ Voice Assistant

Build your own model

Use DEEPCRAFT™ Studio's unique and powerful modeling capabilities to make a custom Edge AI model. The platform enables end-to-end Edge AI model development: from data collection, through preprocessing, model training, evaluation and finally optimization for target hardware. When your model is production-ready, streamlined deployment paths are available via ModusToolbox™ and AURIX™ Development Studio for the Infineon microcontroller of choice.

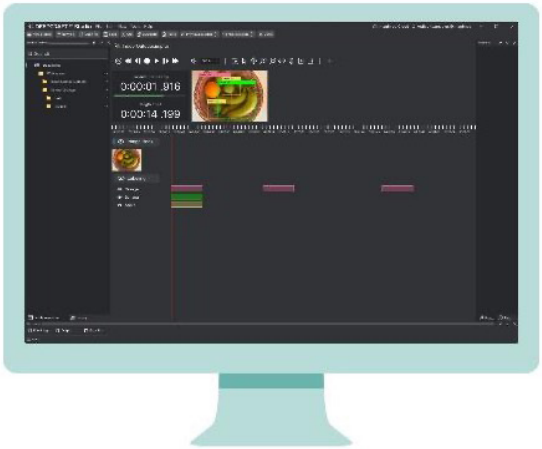
DEEPCRAFT™ Studio is designed to be flexible and intuitive enough for machine learning experts and non-experts alike to be able to successfully develop and take Edge AI models to market.

Featured product:
DEEPCRAFT™ Studio | PSOC™ Edge | XENSIV™ MEMS mic

Edge AI

Object detection

Infineon’s customers can now take advantage of DEEPCRAFT™ Studio's unique and powerful modeling capabilities to make custom Edge AI models for object detection.



DEEPCRAFT™ Studio reduces time spent on making computer vision models by streamlining data labeling, automatically applying a large host of data augmentations during training and leveraging the state-of-the-art YOLO pipeline. The generated code is then optimized for PSOC™ Edge and designed to be seamlessly integrated, drastically reducing time spent on porting.

Featured product:
DEEPCRAFT™ Studio | PSOC™ Edge

Wireless Connectivity

Wireless technologies like Wi-Fi, Bluetooth®LE, and NFC make up the backbone of everyday IoT applications. As a wireless pioneer and market leader with over 1 billion units shipped, Infineon has solved the technical challenges of wireless connectivity including wireless co-existence and low-power wireless. Infineon also drives the future direction of Wi-Fi, Bluetooth®, and Matter through their standards bodies.

Infineon's AIROC™ Wi-Fi 6E

Wi-Fi 6E promises to bring improved reliability and bandwidth for congested wireless environments by opening up the 6 GHz band. With lower latency and power consumption, communication is more efficient compared to the 2.4 GHz and 5 GHz bands. Infineon has combined AIROC™ Wi-Fi 6 connectivity with NVIDIA's processors to demonstrate low-latency and improved user experience for AI applications.

Featured product:
AIROC™ Wi-Fi 6/6E Bluetooth® 5.x combo

Learn more:
Infineon Wi-Fi 6E and NVIDIA AI demo video

AIROC™ Wi-Fi & Bluetooth® Partner Modules

Adding Wi-Fi and Bluetooth® connectivity to your IoT product requires careful design to ensure proper performance and regulatory compliance. Infineon's partner modules accelerate time-to-market by providing optimized RF design in a small package. Partner module lineups include pre-certified modules with integrated antennas, as well as modules combining MCU and connectivity in one. Get your IoT products to market faster, easier, and with less risk!

Featured product:
AIROC™ Wi-Fi and Bluetooth® Combo

Learn more:
Partner module selection guide

Wireless Connectivity

AIROC™ Bluetooth® modules

Infineon's fully integrated, certified, and programmable AIROC™ Bluetooth® modules let you easily build products faster and with minimized risk by giving you pre-built modules that are certified for multiple global regulatory bodies. Easily find the right module for your application with a wide range of options for antenna types, output power, temperature range, and size. These modules get you to production faster with pre-configured software along with partner support and services.

Featured product:
AIROC™ Bluetooth® and Multiprotocol

Learn more:
Bluetooth® module selection guide

Long range Bluetooth®

Traditional Bluetooth® has a range that only reaches a few meters, making it unusable for applications that need longer range. With a range of up to hundreds of meters, Bluetooth® LE long range makes using Bluetooth possible for applications that require long range like smart city infrastructure, asset tracking, and industrial automation. By supporting all the Bluetooth® LE 5.4 features you need, Infineon's AIROC™ CYW20829 lets you take advantage of Bluetooth® LE long range for your next design.

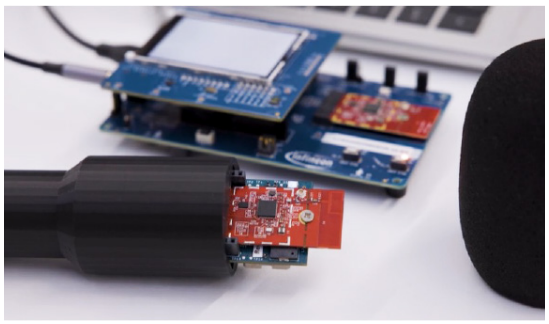
Featured product:
AIROC™ Wi-Fi Bluetooth® Combo

Learn more:
CYW20829 Bluetooth® long range video

Wireless Connectivity

Bluetooth® broadcast with LE Audio

LE Audio represents the future of wireless audio with lightning-fast connections, seamless bidirectional communication, and the ability to broadcast audio to multiple devices at once - a game-changing upgrade from traditional point-to-point communication. Using a new generic audio framework and advanced codec for unparalleled performance, LE Audio reduces lag and provides a more immersive, more connected audio experience. Infineon's CYW20829 let you quickly get started with evaluating LE Audio for your application.



Featured product:
AIROC™ CYW20829

Learn more:
LE Audio video

Low latency gaming

The rising performance demands of competitive gaming and extended reality are often pushing the limits of wireless technologies. Current solutions for low latency HID are often proprietary in nature, requiring dedicated radio components, both on the receiver and transmitter side, restricting customers to a limited supplier landscape and increased overall system costs. With HID over ISOC, Infineon delivers the same performance as proprietary solutions while still offering the flexibility to create a lower cost, interoperable solution.

Featured product:
AIROC™ CYW20829

Learn more:
Low latency gaming demo video

Wireless Connectivity

Wi-Fi range

Infineon's AIROC™ Wi-Fi 6 devices go beyond the standard, featuring high transmit power and low receive sensitivity for maximum range and coverage without the need for expensive front-end amplifiers. Advanced algorithms further improve coverage by minimizing interference from both neighboring networks and other noise sources. This contributes to a robust connectivity experience, with less risk of dropped connections and reduced data rates.

Featured product:
AIROC™ Wi-Fi and Bluetooth® Combo

Learn more:
AIROC™ Wi-Fi 6/6E + Bluetooth® Solution video

AIROC™ Wireless Coexistence

Different wireless technologies like Wi-Fi, Bluetooth®, and ZigBee/Thread on the same device can interfere with each other causing dropped connections, degraded performance, and overall poor user experience. Infineon's advanced coexistence algorithms ensure optimal performance and reliability even during the most challenging concurrent use cases. Parameters are configurable to meet developers' design targets.

Featured product:
AIROC™ Wi-Fi Bluetooth® Combo

Learn more:
Wireless Collaborative Coexistence Application Note

Wireless Connectivity

Low power Wi-Fi

Infineon's AIROC™ lineup features devices with Ultra Low-Power (ULP) architecture for optimized power consumption in both active and standby modes. Additionally, advanced network offload capabilities enable the Wi-Fi device to maintain a connection all the way through to the cloud server, while the host processor remains in low-power sleep mode.

Featured product:
AIROC™ CYW43022

Learn more:
Low-Power System Design Application Note

Multi-platform compatible

For flexible and rapid development of your connected product, Infineon provides AIROC™ wireless support for major third party platforms like OS and device platforms. Infineon delivers a complete wireless design environment with ModusToolbox™ for RTOS designs and partners with the open-source community to provide quality and secure connectivity for Linux and Android.

Featured product:
AIROC™ wireless

Learn more:
ModusToolbox™ | AIROC™ Linux and Android drivers

Wireless Connectivity

Wireless support for Matter

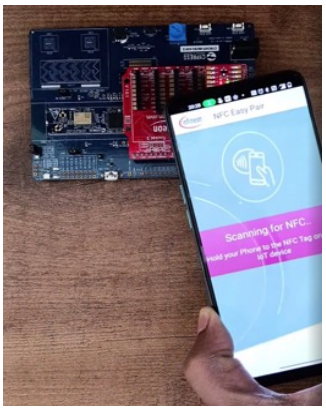
Emerging protocol standards like Matter facilitate the interoperability and adoption of smart home products. As a member of the Connectivity Standards Alliance board, Infineon shapes the Matter specification and also supports Matter over Wi-Fi and Thread with its AIROC™ Wi-Fi microcontrollers which offers two chip and single chip solutions to enable low power, small-form-factor IoT design.

Matter devices require a unique identity, which the OPTIGA™ Trust M MTR supports by coming pre-provisioned with necessary credentials. During onboarding, a secure channel is established between the mobile phone and IoT device, enabling authenticated and encrypted communication. The OPTIGA™ Trust M MTR accelerates this process through crypto offloading, enhancing user experience.

Featured product:
AIROC™ CYW5591x | OPTIGA™ Trust M MTR

Learn more:
Matter web page

matter



NFC for Wi-Fi commissioning

Quick, easy, and secure onboarding remains a challenge for any IoT device using Wi-Fi, especially the devices without a keyboard or screen. Infineon's NFC for Wi-Fi onboarding demo shows how quick and secure Wi-Fi onboarding can be done for applications like appliances, lighting, speakers, TVs, and thermostats.

Featured product:
OPTIGA™ Authenticate NBT

Learn more:
OPTIGA™ Authenticate NBT Kit

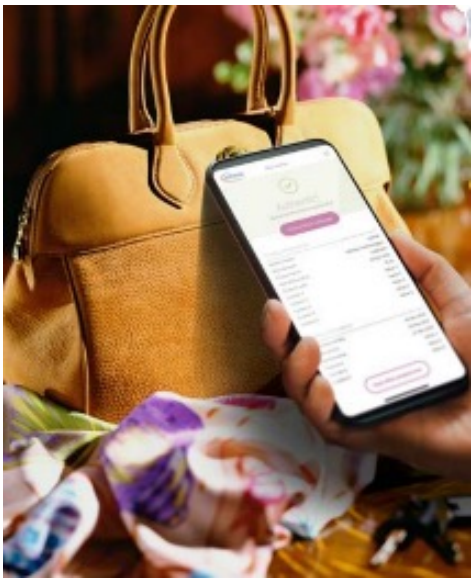
Wireless Connectivity

NFC powered digital experience

Digital customer experiences now include the rising popularity of blending the physical and digital realms for consumer segments like the metaverse. These experiences enhance a brand's physical offering, increase the chances of success against competitors, and drive repeat sales with a more personalized experience. Infineon NFC tags enable this seamless and immersive experience for your customers including invitations to special events, reminders about upcoming service appointments, and connecting to the metaverse brand store.

Featured product:
Secured NFC tags | Plain NFC tags

Learn more:
NFC 2 Go starter kit | NFC application brochure



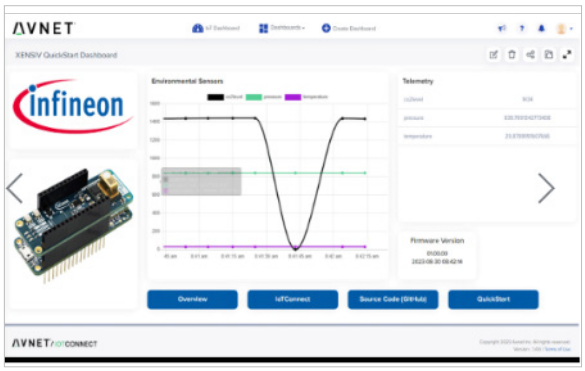
Cloud

Connecting to the cloud has become a central part of an IoT solution as it unlocks the potential for greater analytics, insights, and accessibility for connected devices. With the advent of hybrid cloud and deployments using multiple cloud providers, you need to know that your device can work with any cloud.

Support for major cloud providers

As IoT deployments increase in size and complexity, the cloud vendor you choose today may not be the one you use tomorrow. This uncertainty requires the flexibility to work with any cloud provider. With support for major public clouds, Infineon makes it easy for you to work with the cloud you need.

Learn more:
Infineon cloud services

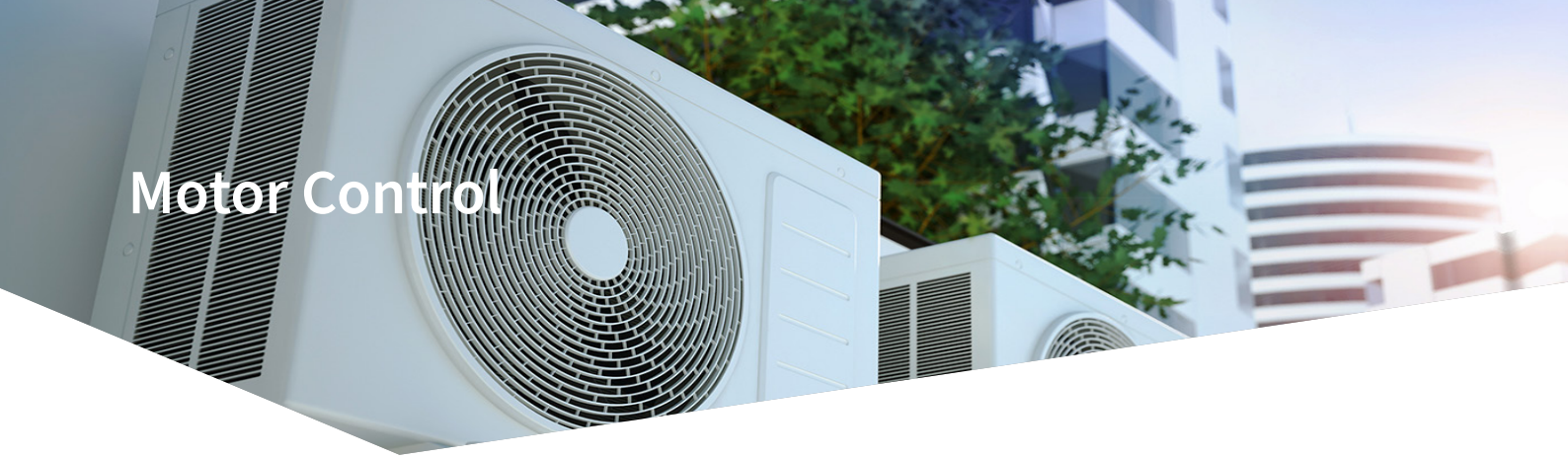


Easy cloud connection

With Avnet's /IOTCONNECT™ connecting Infineon products to the cloud has never been easier. In just minutes, you can onboard your device to the cloud without needing a credit card or prior cloud experience. This streamlined process lets you quickly start to build and develop your project with ease.

Featured Product:
AVNET /IOTCONNECT

Learn more:
Avnet-Infineon kits

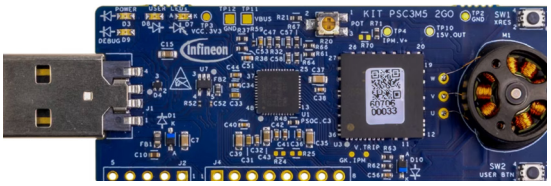


Motor Control

When your IoT device sets things in motion, you need the right combination of hardware and software to implement embedded motor control. The challenge is to find the right expertise to develop the software correctly, especially for things like motor control. Infineon's powerful combination of microcontrollers and motor control software lets you quickly customize your motor control solution.

Easy motor control development

Developing motor control can be difficult with all the different varieties of motors. You can often find yourself struggling to find the right combination of motor control drivers along with support for different power levels. The Infineon PSC3M5 2GO kit lets you get a motor spinning in minutes. This small system board plugs into a USB port and provides an out-of-the-box experience running a BLDC motor using a FOC sensorless single shunt configuration. Adjustment of motor parameters can be made with a simple-to-use GUI from ModusToolBox™ Motor Suite software development ecosystem.



Featured product:
PSOC™ Control C3 Main Line

Learn more:
PSC3M5 2GO Motor Control Card

Featured product:
PSOC™ Control C3

Learn more:
PSOC™ Control video

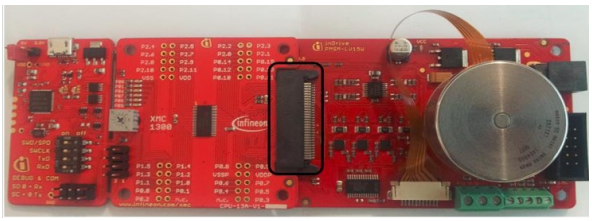
High-performance motor control systems

To improve performance, system efficiency, reliability and reduce cost, tool makers are looking into high-performance, sensorless Field Oriented Control (FOC) motor control solutions. The challenge for implementing FOC is to find a microcontroller with enough processing power and investing the time to develop the software algorithms. Infineon's PSOC™ Control microcontrollers let you quickly build sensorless FOC by supplying all the processing power you need - enough to control up to three motors at once. Combined with integrated analog circuitry and software algorithms in ModusToolbox™ Motor Suite, PSOC™ Control lets you quickly develop high-performance motor control solutions at a lower BOM cost.

Motor Control

Customized motor control

Developing the right control scheme can be difficult given the wide variety of motor control applications. The XMC1000 Motor Control Application Kit lets you quickly prototype PMSM and BLDC motor control schemes with various position and current feedback sensors to balance cost and performance. This modular system allows users to evaluate the XMC1302 or XMC1404 microcontrollers with respect to motor control feature set and performance.



Featured product:
XMC1000

Learn more:
XMC1000 Motor Control Application Kit

Featured product:
ModusToolbox™ Motor Suite

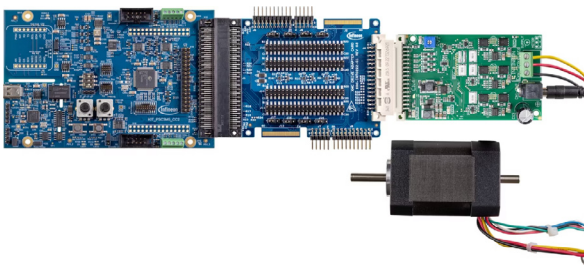
XMC1000Learn more:
ModusToolbox™ Motor Suite video

Simplified motor control development

Infineon's ModusToolbox™ Motor Suite is a comprehensive solution that simplifies the development, configuration, and monitoring of motor control applications, addressing the complexity and time-consuming nature of developing motor control software. By providing a systematic development flow, advanced motor control development kits, and testing and tuning tools, Infineon's Motor Suite helps customers overcome the challenges of developing motor control applications for industrial, robotics, and consumer products. This suite enables designers to get to market faster and reduces the complexity of motor control development.

Complete system motor control

Infineon's PSOC™ Control microcontroller lets you create complete motor control solutions with features like low power modes, idle sampling, and high-resolution timers. It helps overcome energy efficiency and reliability hurdles by optimizing power factor correction and reducing harmonics. This enables you to meet energy labeling requirements and boost system performance, making it a top choice for motor control applications.



Featured product:
PSOC™ Control C3 Main Line

Learn more:
PSOC™ Control C3M5 Complete System Motor Control Kit

Motor Control

Advanced motor control

For advanced motor control applications that need high performance for real time control the XMC7200 Motor Drive Card delivers best-in-class compute performance along with real time, reliable connectivity. With low power modes and the ability to operate in harsh environments, the kit lets you build applications for the most demanding industrial use cases. The large number of peripherals support a wide range of industrial applications and requirements including complex motor control.

Featured product:
XMC7000

Learn more:
XMC7000 robotic arm demo video

Power

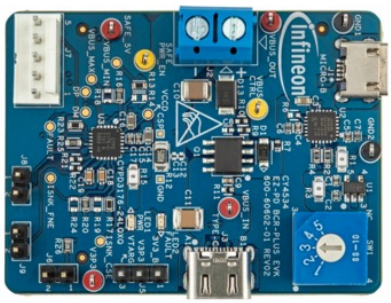
As more devices get connected and smarter, a reliable and efficient power source remains a key requirement. From high voltage to battery power, devices need to effectively manage the power limits and requirements to ensure reliability, performance, and fast time to market. To meet these wide ranging needs, Infineon provides a full spectrum of power solutions from USB-C to Qi wireless charging to battery management systems.

Power Conversion

Power Supply for applications like datacenter servers and telecom need to deliver reliable output voltage levels even as the supply side fluctuates and the loads dynamically change. Combined with the market pressures for higher efficiency and increased power density, high-performance microcontrollers are key to meet these demands. Infineon's PSOC™ Control C3 Performance Line microcontrollers support switching frequencies >1MHz and enable customers to build next generation power conversion systems. With high speed ADC sampling rate and software algorithms in ModusToolbox™ Power Suite, PSOC™ Control C3 lets you quickly develop power conversion solutions with up to PSA L3 security and Post Quantum Cryptography support.

Featured product:
PSOC™ Control C3 Performance Line

Learn more:
PSOC™ Control video



Featured product:
EZ-PD™ Barrel Connector Replacement-Lite

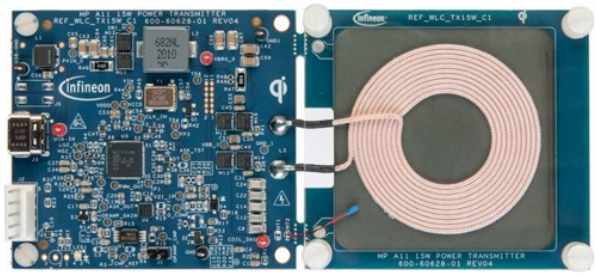
Learn more:
Barrel connector replacement kit |
Barrel connector replacement tech talk video

USB-C power

The world has started moving to USB-C which is becoming the most common power source for portable electronics. To correctly design a USB-C power source requires in-depth knowledge to handle the software and hardware requirements. With a rich portfolio of USB-C and power delivery products, Infineon provides end-to-end solutions for USB-C Power Delivery.

The EZ-PD™ Barrel Connector Replacement (BCR) is an easy to use, cost effective solution to replace old, incompatible barrel jacks or custom connectors with Infineon's highly integrated USB Type-C port controller – all with no firmware development and few external components.

Power



Wireless charging

With the widespread adoption of the Qi wireless charging standard, there is a growing risk of using unauthorized wireless chargers. Infineon lets you easily build authorized Qi compliant wireless chargers with secured authentication using OPTIGA™ Trust Charge. OPTIGA™ Trust Charge supports device authentication for inductive wireless charging according to the Qi 1.3, Qi 2.0, and Qi2 wireless charging standard. As your partner for secured authentication according to the Qi wireless charging standard, Infineon makes the Qi certification process easy by handling the entire provisioning process, including the WPC-compliant certificate chain. In addition, the Wireless Charging kit makes development easy by offering a highly efficient and secure wireless charging platform.

Featured product:
OPTIGA™ Trust Charge | WLC1115 wireless charging transmitter IC

Learn more:
Wireless charging kit

Industrial switch-mode power supplies

Industrial switch-mode power supplies (SMPS) operate in outdoor environments without cooling and require reliability and robustness since they must deal with high-temperatures, outdoor use, line surges, load jumps, and short circuits. Infineon SMPS delivers the best price to performance ratio along with the highest efficiency and reliability for the typical 10 to 20 year industrial SMPS life cycle.

Featured product:
XMC4200 | 600V CoolMOS™

Learn more:
EVAL_3K3W_BIDI_PSFB evaluation board

Power

Modular hybrid inverter

Infineon's Modular Hybrid Inverter Design Platform offers you a comprehensive solution for residential and small commercial hybrid inverter systems, addressing the challenges of balancing efficiency and cost. By providing pre-developed hardware design blueprints and corresponding software offerings, Infineon lets you rapidly design and test modular hybrid inverters with state-of-the-art technologies. This platform helps overcome the traditional trade-off between highest efficiency and lowest cost per kW, allowing you to create innovative and cost-effective hybrid inverter solutions.

Featured product:
REF-CLBXMC7PEC kit

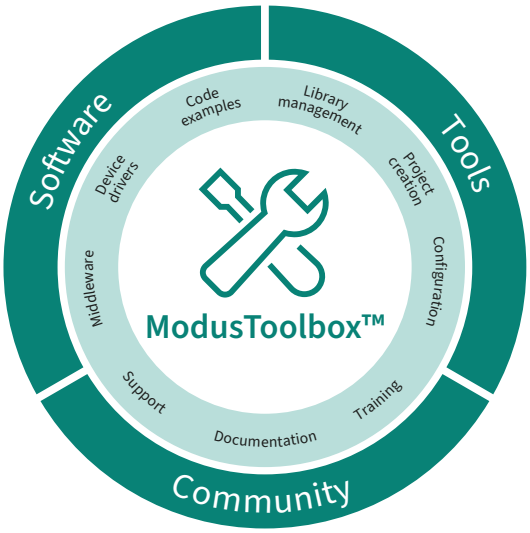
Learn more:
Modular hybrid inverter design platform

Software

Developers are often forced to choose between closed, proprietary flows that struggle to keep pace with modern innovations and open platforms that fail to support the unique features and value of their target device. The ModusToolbox™ software ecosystem delivers the best of both worlds with a platform that gives you a flexible development experience, increased productivity, and feature-rich, development tools and embedded run-time assets. ModusToolbox™ makes your life easier and more efficient by removing development barriers and allowing you to deliver quality products to market faster.

Embedded software

ModusToolbox™ accelerates the software development lifecycle without imposing a rigid, inflexible flow on engineering and validation teams. Unlike traditional IDE centric approaches, ModusToolbox™ provides powerful standalone tools supporting project creation, middleware management, BSP customization, and device configurators, while leaving the choice of compiler, editor, debugger, and revision control system to suit your preferences.
Ready-to-use software assets, example code project, and documentation let you reduce errors. Even the traditionally tedious tasks of creating a new project and keeping software up-to-date are easy with the ModusToolbox™ Project Creator and Library Manager tools.



Featured product:
ModusToolbox™

Learn more:
ModusToolbox™ introduction video

Where to Buy

Infineon distribution partners and sales offices:
www.infineon.com/WhereToBuy

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Infineon offers its toll-free **0800/4001** service hotline as one central number, available 24/7 in English, Mandarin and German.

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Direct access	+49 89 234-0 (interconnection fee, German/English)

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