APPLICATION BRIEF

Innovative PC Peripherals

Efficient, Intelligent, Future-Proof, and Improved UX

PC Accessories are effectively input & output devices which extend the functionality and capabilities of a computing system. This includes products such as HID devices (mice, keyboards, remotes), Docking Stations & Monitors, Headsets, Webcams, and more.

With over 400 million units shipped annually, PC Accessories have become ubiquitous with the computing experience. Yet, despite their widespread proliferation, their experiences are seen as "lagging behind "those found in the Smart Home or Smart Car. This is prompting an increased focus on innovation and differentiation from leading OEMs.

As a result of this prioritization, OEMs are differentiating their PC Accessories through a number of mechanisms – "ditching the dongle", remote peripheral management, contextual & situationally aware experiences, incorporating cutting edge standards, and more.

Even the once simple mouse and keyboard are undergoing profound changes – Engineered for Intel® Evo™ certified direct-to-host connections, utilizing Time-of-Flight, Radar, or CAPSENSE™ for user proximity detection, magnetic sensors for multipoint key actuation, or even IMUs supporting gesture-based inputs.

Whether you are looking to "ditch the dongle", remotely manage PC Peripherals, incorporate presence-based experiences, support the latest in USB-C Power Delivery specifications, or deploy low-latency HID on your next device, Infineon has the portfolio and experience to be your partner of choice for today's and tomorrow's computing experience.



Key features

Scalable Wireless, Touch, and Sensing in HID Devices

CYW20829 Bluetooth® LE SoC

- Engineered for Intel® Evo™ Certified
  - Best-in-class direct-to-host connections
- 20% battery life improvement
- Security support for Cyber Resiliency Act (CRA) & Radio Equipment Directive (RED)
- Low Latency HID ready – < 1ms

PSOC™ 4000T Touch MCU

- Integrate on/off detection + touch HMI in same device
- Always-on sensing without core activation
  - Scan for touch/proximity < 6uA
- Detect proximity beyond loop diameter
  - 10x higher signal-to-noise ratio
- Robust to water, hair, & sweat
- In-built gesture engine
  - Single & multi-finger support
  - High precision tracking
  - Force touch support
- WLCSP package for integration into small form factors

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Overview of core technologies & considerations

Connectivity

- Bluetooth®, Bluetooth® LE, and Proprietary 2.4 GHz
  - Majority are LE-based today
  - Proprietary 2.4 GHz often used for low latency

Sensing

- CAPSENSE™ touch & gesture recognition
- ToF, Radar and CAPSENSE™ used for proximity-driven features
- Magnetic sensors (e.g. joysticks, multipoint key actuation)

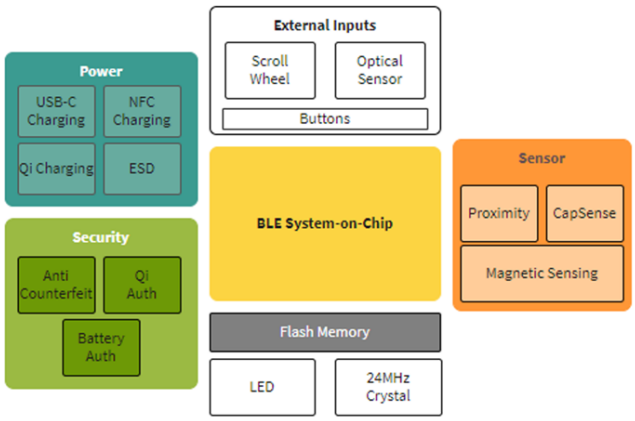
Compute

- Introduction of higher performing cores - Arm® Cortex® M33
- Low-latency keyscan matrix

Security

- Brand protection (authentication & anti-counterfeiting)
- Growing interest in battery pack authentication
  Cyber Resiliency Act (CRA) & Radio Equipment Directive (RED) mandatory for wireless devices shipping into Europe

Block Diagram of full-featured HID product



Hero Product Summary

Part Number	MCU / SoC	Board Type	Description
CYW920829M2EVK-02	AIROC™ CYW20829	Wireless Connectivity	Evaluation, prototyping, and development of applications with Bluetooth® Low Energy 5.4
CY8CKIT-040T	PSOC™ 4000T	Touch MCU	Touch-sensing kit with fifth-generation CAPSENSE™ technology
XENSIV™ Game Controller	Magnetic Position Sensors	Evaluation Board	Wireless Bluetooth Gamepad with plug-and-play HID configuration, high-precision TMR/Hall joysticks, energy-efficient CAPSENSE™ & BLE, OLED display and a PSOC™ 6 kit

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