Silicon Labs Reference Design Simplifies Development of USB Type-C Rechargeable Battery Packs

USB Dual-Role Port Power Charging Solution Targets Smartphones, Tablets, Laptops and Other Portable Devices

AUSTIN, Texas, Oct. 9, 2017 /PRNewswire/ -- Silicon Labs (NASDAQ: SLAB) has introduced a comprehensive reference design to simplify the development of USB Type-C™ rechargeable lithium ion battery packs used to power smartphones, tablets, laptops, headphones and other portable devices. The reference design includes everything developers need to create dual-role port (DRP) applications with USB Type-C power delivery (PD), accelerating the development of new USB Type-C battery packs or migrating existing USB Type-A battery pack designs to USB Type-C. Silicon Labs' USB Type-C Battery Pack Reference Design includes a development board, USB Type-C PD stack, example code, schematics and a hardware manual.

The DRP battery pack reference design takes advantage of the PD stack included in Silicon Labs' Simplicity Studio. The stack enables developers to make high-level function calls to negotiate and send USB Type-C messages to send or receive power. The flexible board design gives developers complete control over the battery application and includes a button used to change the power direction between sink and source mode.

The Silicon Labs EFM8 Busy Bee MCU on the development board serves as a PD controller and provides exceptional design flexibility by negotiating a variety of power schemes. The reference design supplies 15 W (3 A @ 5 V) of power and charges at 1.8 A. The PD stack uses only a portion of the MCU's capabilities, leaving many peripherals, memory and processing power available for developers to control regulators and power ICs, detect orientation, control switches, update other hosts on status and more. By using the EFM8 Busy Bee MCU as a PD controller, developers can incorporate other useful functions including an integrated temperature sensor and an analog-to-digital controller (ADC) to monitor the battery pack's temperature and voltage to prevent overheating or overcharging.

"We're a mobile, connected society, and users need convenient rechargeable power sources for their smartphones, tablets and other portable devices," said Tom Pannell, Senior Director of IoT Products at Silicon Labs. "Two-way, rechargeable battery packs are must-have products for people on the go, and our new turnkey USB Type-C reference design makes it incredibly easy for developers to create DRP charging solutions that are flexible, cost-effective and feature-rich."

Silicon Labs is a leading provider of USB connectivity solutions and smart interface ICs that enable developers to add USB to embedded designs without the cost and complexity of firmware development. Silicon Labs offers several single-chip connectivity bridge solutions to support USB-to-serial protocols as well as specialized bridges for human interface device (HID) class and capacitive touch applications. The company also supports USB connectivity through its EFM8 8-bit MCU portfolio and EFM32 Gecko 32-bit MCU portfolio.

Pricing and Availability
Silicon Labs' USB Type-C rechargeable battery pack reference design including the new SLRDK1000 development kit is available now and priced at $50 (USD MSRP). Contact your local Silicon Labs sales representative or authorized distributor for volume pricing of EFM8BB3 Busy Bee MCU products for USB Type-C battery pack designs. For more information about Silicon Labs' USB Type-C development tools and new rechargeable battery pack reference design, visit www.silabs.com/usb-type-c.

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