Battery Interface v1.00

Q&A

Final 02/20/12

Overall Q&As

Q. What are you announcing today?

A. MIPI Alliance today announced a battery interface for mobile devices which improves consumer safety, battery performance, lessens the battery's environmental impact. The robust, scalable and cost efficient single-wire communication interface is the first standard to address these key issues.

Q. It seems like this specification addresses many issues. How can one interface solve all these issues?

A. No specification can solve all issues. The Battery Interface specification has been developed in tight co-operation of mobile device OEMs, chipset suppliers and battery IC suppliers. We believe it is the best compromise for a mobile device battery interface emphasizing the right things for all stakeholders involved as result of systematical and thorough analysis of the requirements of each stakeholder.

Q. Why did MIPI Alliance develop this specification?

A. Currently there are multiple proprietary battery interface solutions in the market. This means lower volumes for each solution, and consequently higher costs especially for smart batteries. The lack of a commonly accepted battery interface has caused numerous challenges for the mobile device OEMs – who must support and maintain all of these disparate solutions. In addition, there was no interface specification which addressed both the manufacturing and consumer careabouts.

Q. What applications are targeted with this specification?

A. The Battery Interface specification targets the entire mobile battery ecosystem - OEMs, chipset suppliers, battery slave IC suppliers and battery pack manufacturers.

Q. Who can use these MIPI specifications?

A. MIPI specifications are available to MIPI Alliance members.

Q. Why should a company in the ecosystem adopt the MIPI Battery Interface?

A. By adopting the specification, a company can realize the above mentioned benefits plus reduce the complexity brought by managing numerous different proprietary solutions. For example, a chipset maker needs only to support BIF in the future and all the different OEM proprietary interfaces that exist up to now.

Q. Are there other organizations that develop interface specifications for the battery portion of wireless devices?

A. The Smart Battery System interface, developed by the Smart Battery System Implementers Forum is believed to be the closest standard to MIPI's Battery Interface specification. However, the SBS interface was not developed specifically for mobile applications. Nor does it offer fast battery pack presence detection, support low-cost battery solutions, offer a battery authentication function, or provide a unified, scalable data structure with software access to all battery data and functions.

Q. Will MIPI Alliance continue to develop new versions of the Battery Interface specification?

A. The Battery Interface working group continues to follow and analyze the feedback of its members and whole ecosystem. The information will be used to develop the standard further as needed.

Technical Q&As – Battery Interface v1.00

Q. What does BIF v1.00 specify?

A. The BIF v1.00 specification defines a single-wire communication interface between a mobile device host and low cost or smart battery packs.

Q. What are the key attributes of the specification?

A. Key features include:

- Single wire communication interface
- Supports single low cost or smart battery pack on a communication line
- Battery insertion, presence and removal detection
- Single master, multi-slave configuration up to 256 slaves
- Scalable, asynchronous master and slave clocks
- Up to 64kb of addressable memory per slave
- Interrupt capability and generic data structures defined
- Protocol can be implemented on the host via software
- Allows for low cost slave implementation
- Low gate count with no accurate time base required
- Supports temperature monitoring of the battery pack
- Supports authentication of the battery pack

Q. What are the key benefits for this specification?

A. This specification offers unified access to battery back parameters and functions that improve battery performance, enhance consumer safety and enable “greener” chemistries.

Q. How does this specification improve battery performance?

A. Popular smart phones are known to have shorter battery life because they use large amounts of data and always-on applications. This specification includes unified access to parameters, state monitoring and optimized charging events which improve functionality within the battery, thereby lengthening its life.

Q. How does this specification provide enhanced consumer safety?

A. BIF v1.00 enhances consumer safety by supporting advanced authentication and temperature measurement functions. Battery authentication detects potentially dangerous counterfeit products which can harm users. Also, temperature monitoring is vital to insure the battery does not overheat, damaging the device or the person.

Q. How does this specification enable "greener" chemistries?

A. The same unified access to parameters, state monitoring and optimized charging events also enable battery pack manufacturers to quickly implement and adopt environmentally-friendly and efficient chemistries for a "greener" battery.

Q. Does this specification include a physical layer?

A. Yes. The BIF specification uses a single-wire, open-drain communication interface. It supports either a single low-cost battery pack or a single smart battery pack on the battery communication line at a time.

Q. What is not included in the specification?

A. It does not specify mechanical connector pins or form factor of the battery interface

Q. Which companies developed this v1.10 specification?

A. Analog Devices, Infineon Technologies, Intel Corporation, Lattice Semiconductor Corporation, Nokia Corporation, Panasonic Corporation, Qualcomm Incorporated, Research In Motion, Sony Ericsson Mobile Communications, STMicroelectronics, ST-Ericsson, Texas Instruments Incorporated and Toshiba Corporation.

Q. Is there a roadmap for this specification?

A. As of today, there is no 'fixed' roadmap for the specification. There are ideas though how to enhance the performance. Currently, the working group is waiting for feedback from the real applications to understand what enhancements would really benefit the stakeholders.

Q. What is unique to BIF v1.00 compared to other battery interfaces?

A. The table below provides a comparison between the BIF and the Smart Battery System (SBS) interface specification, which is presumably the closest relative to BIF

Requirement	MIPI BIF v1.0	SBS Rev 1.1/SMBus 2.0
Low Cost Battery Support	Yes	No
Smart Battery Support	Yes	Yes
Fast Battery Pack Presence Detection	Yes	No
Single Wire Interface	Yes	No (two wire SMBus)
PHY Signal level VHigh_min/VHigh_max	0.9V – 3.0V	2.1V - 5.5V
Battery Authentication Function	Yes	No
Battery Temperature Monitoring	Yes	Yes
Slave Interrupt support	Yes	No (optional wire)
Manufacturer specific Function support	Yes	Yes (up to 5)
Multi-slave support	Yes	Yes
Unified SW access to all functions and data	Yes	No
Unified, scalable data structures and scalable function content in a Slave device based on need.	Yes	No