

APPLICATION BRIEF No. 1001

Notebook Hot-Swap – Battery

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Outline

Limited battery life is still one of the limitations of Notebook PCs, and whenever a Notebook's battery needs to be changed, it first has to be shut down. The **cap-XX Hot Swap** technology enables a Notebook to retain its memory data in sleep mode while the battery is being changed. Battery swaps can be done in moments, with no need to re-boot.

The Problem

- Notebooks are becoming faster and more energy-hungry with each leap in technology.
- Battery systems are struggling to keep up, even with the latest Lithium ion storage and Smart Battery System technology.
- Even batteries with the longest run-time have to be recharged at some point.
- In the past, the Notebook has always had to be shut down to swap batteries, a time-consuming and frustrating process.

The cap-XX Solution

- Use cap-XX supercapacitor-powered technology to keep your notebook alive while the battery is removed.
- cap-XX supercapacitors can be designed with low ESR and high capacitance to keep your downtime to the minimum while doing those inevitable battery swaps. Typical specifications for a cap-XX supercapacitor pair used in this application are: C=100F, ESR=7.5mΩ (nominal, per device). cap-XX supercapacitors can be designed to suit your application.
- Energy stored in slim, flat, cap-XX supercapacitors can power an integrated, standard DC-DC converter to provide memory power while the battery is being changed. Costs can be reduced by integrating the supercapacitor into the Notebook power system, using existing boost and buck converters, as necessary.
- The user need only put the Notebook into sleep mode before performing the **cap-XX Hot Swap**, which takes just seconds. Swap time is 1-1.5 minutes (max.) in a cap-XX test system.
- The designer can take advantage of integration to make the Hot Swap a seamless process for the user, switching between from battery to supercapacitor and back again by means of appropriate MOSFET switches.

The Benefits

- You can design your Notebook to run continuously for an indefinite period, as long as there's a fresh battery to use.
- Your customers won't experience long delays and frustrating downtime, shutting down their Notebooks and re-booting just because the battery was low.
- Battery swaps become simple and a pleasure to do.

Further Information:

cap-XX will be pleased to supply you with detailed data and design information. For further details use the contact information at the foot of this page.

cap-XX Application Briefs are produced as a means of providing product designers with useful information about cap-XX supercapacitors and their applications. They are revised periodically to include new information. For detailed specifications of cap-XX products, the reader is referred to the data sheet of the relevant product, which is available on request.



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