

Specification of Local Battery Monitoring Unit and Controller

D3.1



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1 Publishable Executive Summary

The INCOBAT Project addresses the development of a new Battery Management System Module for integration into Battery Cell for Fully Electric Vehicles. The targets are a radical cost reduction by massive increase in the level of hardware integration. INCOBAT will optimize the distribution of the functionalities and intelligence between the central control unit and the satellite BMS units. The use of a multi-core processor in the central BMS unit lowers the cost compared to all BMS solutions existing or being approached by other projects. INCOBAT will deliver optimum satellite BMS units based on a minimum number of dedicated sensors and electronics components and a cost effective integration scheme, which is able to meet the requirements.

The present document will represent the general System Specification and requirements appropriate to the satellite BMS units.

The BMS shall be able to provide:

- Scalable battery management solution for battery packs up to 1000V
- monitoring of voltages, temperatures, current;
- over /under voltage detection
- SoC, SOH, SoF calculation;
- cell balancing: active/passive
- Robust design against rf disturbances
- Robust Communication
- Galvanic isolation on all major interfaces
- Fault detection and diagnostic
- Safety and protection
- Low cost
- Cells protection

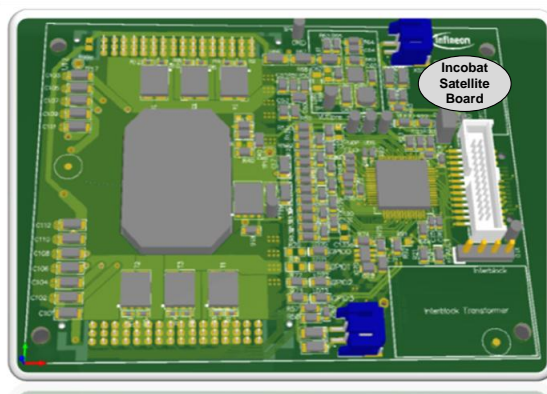


Figure 1: Battery Management System Satellite Board 3d plot

The highlights for the incobat satellite boards are the very robust communication interface without transformers, simultaneously cell voltage measurement of all battery cells with an accuracy of $\pm 1.5\text{mV}$ and a high efficient active balancing mode for intercell balancing as well as for interblock balancing.