

A Comparison of Two Panasonic Lithium-ion Batteries and Cells for the IBM Thinkpad

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The IBM Thinkpad 760XD has been used in the Orbiter and International Space Station since 2000. The Thinkpad is powered by a Panasonic li-ion battery that has a voltage of 10.8 V and 3.0 Ah capacity. This Thinkpad is now being replaced by the IBM Thinkpad A31P which has a Panasonic li-ion battery that has a voltage of 10.8 V and 4.0 Ah capacity. Both batteries have protective circuit boards.

The Panasonic battery for the Thinkpad 760XD had 12 Panasonic 17500 cells of 0.75 Ah capacity in a 4P3S configuration.¹ The new Panasonic battery has 6 Panasonic 18650 cells of 2.0 Ah capacity in a 2P3S configuration.

The batteries and cells for both models have been evaluated for performance and safety. A comparison of the cells under similar test conditions will be presented. The performance of the cells has been evaluated under different rates of charge and discharge and different temperatures. The cells have been tested under abuse conditions and the safety features in the cells evaluated. The protective circuit board in the battery was also tested under conditions of overcharge, overdischarge, short circuit and unbalanced cell configurations. The results of the studies will be presented in this paper.

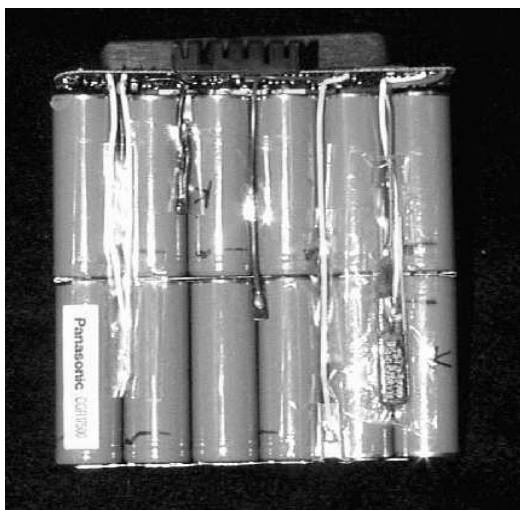


Figure 1. Panasonic Battery for the IBM Thinkpad 760 XD showing Panasonic 17500 cells and the protective circuit board.



Figure 2. Panasonic Battery for the IBM Thinkpad A31P.

References:

1. J. A. Jeevarajan, F. J. Davies, S. M. Lazaroff and B. J. Bragg, *Proceedings of the 39th Power Sources Conference*, Cherry Hill, NJ, June 2000.

