Case Study

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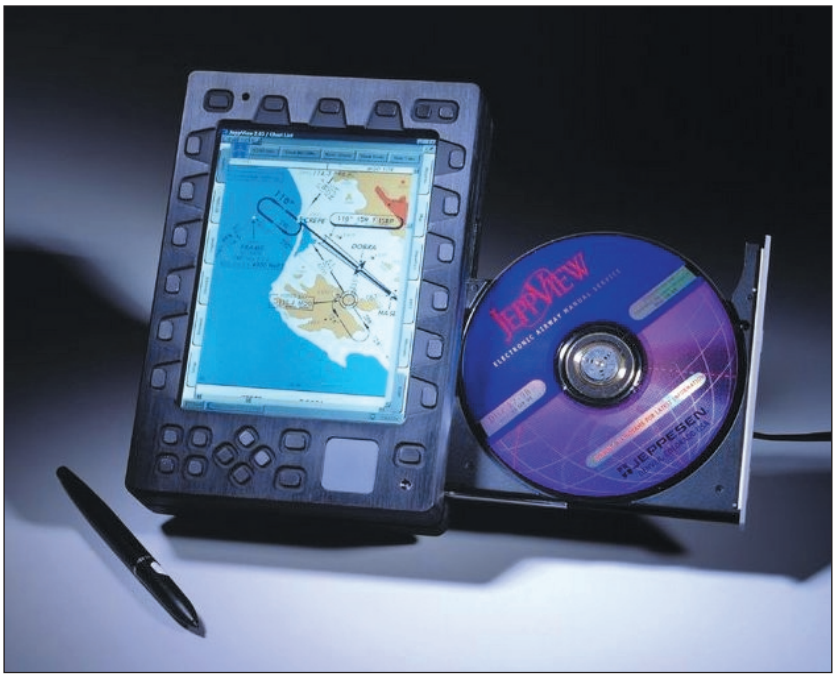
# Northstar Technologies CT-1000 Flight-Deck Organizer




**The Opportunity:**

Northstar Technologies, Inc. offers its CT-1000 Flight Deck Organizer to the more than 700,000 licensed airplane pilots in the United States. Most of these pilots still fly with paper charts which are costly to print, time consuming to file, heavy to carry, and awkward to use in an aircraft. As such Northstar teamed with Jeppesen Inc., one of the largest chart publishers in North America, to provide its navigation databases in digital format to Northstar's customers. Now pilots can use the CT-1000, a powerful portable PC, to create digital flight plans at home, in the office, or in their hotel rooms. They can then mount the CT-1000 in the airplane's cockpit to track their flights' progress in real time. The pilots benefit from the efficiencies of automating route planning, navigation, and updating their charts while their insurance agencies benefit from fewer claims for back injuries caused by carrying heavy, paper-filled chart cases.

**The Challenge:**

Northstar needed a PC that was no larger than a paperback yet more rugged than a notebook PC. It also needed an integrated CD-ROM reader, touch pad, pen input, custom function keys, a high resolution, daylight readable display, and built in GPS. Further, it had to pass the stringent RFI and EMI requirements for cockpit-mounted devices. Finally, a working prototype had to be ready within six weeks for the industry's largest trade show.

**The Solution:**

Northstar chose Regan Designs, one of Cell Computing's hardware design partners, to realize the CT-1000 Flight Deck Organizer. In turn Regan chose Cell's 166MHz CardPC – a small footprint, high performance, low power system module – as the core engine for the Windows '98 platform. Regan also used Cell's board level reference design, which included a design review by Cell's engineering team, to complete the mother-board for the CT-1000 within one week. This allowed the design team five weeks to develop the case, inte-grate the LCD, and program value added firmware for the final product.

**The Alternatives:**

Regan Designs considered using a PC/104 board but they proved to be too large and power hungry for the application. Developing a custom ASIC would have been too costly and time consuming. And system on chip solutions could not provide the required performance for the Flight Deck Organizer nor did they provide smooth scalability to 233MHz performance, a wide range of standard driver support, and the rich power management features included in Cell's CardPC.