



## Shipping Monitor

When it comes to shipping payloads for NASA, it takes a lot more than Styrofoam peanuts and bubble-wrap to insure the safety of the delicate instruments aboard. NASA's need to track the vibration and movement of payloads for the Space Shuttle led to funding for a **Small Business Innovation Research (SBIR)** contract between Kennedy Space Center and Silicon Designs, Inc., of Issaquah, Washington. The result was a tri-axial data acquisition system that acquires, stores, and analyzes shock, vibration, and temperature data during payload transport.

A data acquisition system such as this improves NASA's ability to determine if any damage has occurred to Space Shuttle payloads during transport to the launch pad. Operations at Kennedy require numerous payloads to be transported from assembly and test facilities to other assembly facilities or the launch pad. Kennedy's Payload Operations need for this invention led to the Smart Tri-Axial Acceleration Data Acquisition and Storage System.

Silicon Designs' tri-axial system, known commercially as the G-Logger™ Acceleration Acquisition System, is a portable, self-contained device powered by two D-cell batteries. The system is sealed for protection from the weather and can be left unattended for up to three weeks as it collects data.

The G-Logger can store up to four million samples of acceleration and temperature data in its flash memory. The unit is able to make maximum use of its eight megabytes of memory by preprocessing data to screen out unwanted information. G-Logger can measure and record three directional acceleration components by attaching the acquisition unit to the payload for monitoring.

The data acquisition unit links up easily to any desktop or laptop computer, running Windows 95/98, through a serial connection. Through this

linkup, data can be downloaded from the data collection unit, analyzed, and displayed almost immediately.

There are several industry applications for the G-Logger line of tools. John Cole, president of Silicon Designs, projects uses for the line of tools in automotive, shipping, aerospace, and rotating machining operations. As an automotive application, the G-Logger could be used for racecar instrumentation, suspension testing, or as a crash detector. In the shipping industry, the G-Logger may monitor acceleration, shock and vibration of payloads during shipping and handling. Finally, it can serve as a flight vibration monitor for aircraft.

The potential of the G-Logger being used in such a wide array of applications because of its versatility has Silicon Designs excited and hopeful about its future prospects.

G-Logger™ is a trademark of Silicon Designs, Inc.



*Silicon Designs' G-Logger™ products provide instant data analysis on the status of payloads during shipping and handling.*