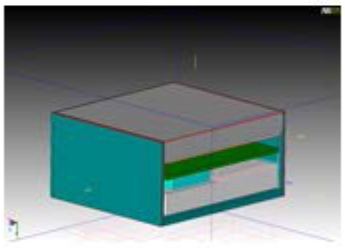
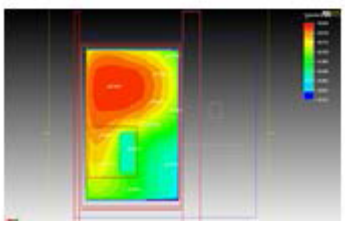
Design Case Study

Industry:
Consumer Electronics
Application:
Mini Computer





Introduction

- **While developing a portable mini android based computer, The client of Aavid, Thermal division of Boyd Corporation, had experienced issues with its new product's reliability. The minicomputer was configured to shut down when temperatures inside reached 45°C and was doing so unexpectedly during charging. For the client time was critical as the manufacturing line was stopped to resolve this issue.**

The Challenge

- **Quickly detect failure shutdown by analyzing current solution and design and make suggestions to solve the issue.**

The Solution

- **Over a weekend Aavid developed a thermal model of the existing product and verified the model through physical testing in their lab.**
- **Aavid conducted a CFD simulation for various concept solutions that examined heat isolation and heat transfer within the device.**

The Deliverables/Results

- **Aavid discovered that:**
  - Charging increased the battery temperature by 5.3°C but the increase in temperature is due to heat conducted from the PCB to the battery.
  - PCB temperature results indicated that it heats up earlier than the battery to more than 45°C and results in system shutdown.
  - With minor adjustments to the design, Aavid was able to isolate components for the product to operate in all modes.
- **The client took Aavid's suggestions to adjust the layout in the device to prevent future shutdown during charging and returned to manufacturing with limited delay.**