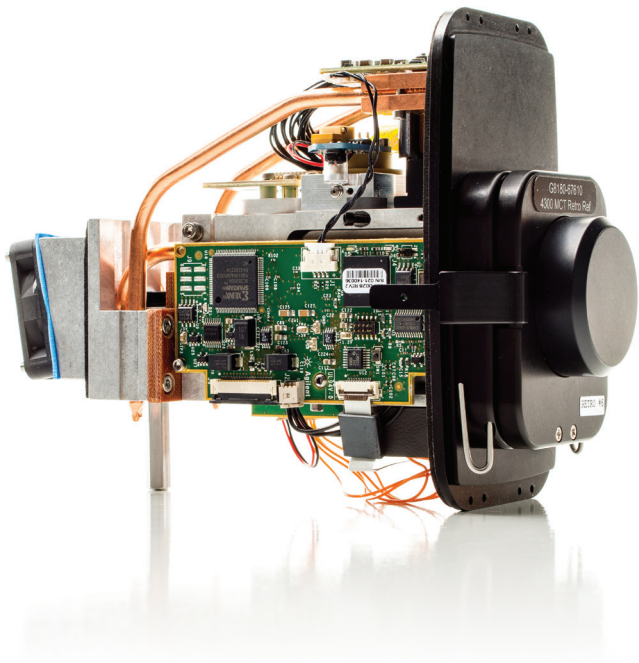


Embedded System Design

HANDHELD SPECTROMETER

Working with one of the leading global providers of scientific measurement tools, Presco helped to develop a next-generation handheld spectrometer. Due to packaging constraints, the electronics were partitioned amongst several circuit boards, making use of all available space.

- Torpedo DM3730 System on Module (SOM)
- Employed Package-on-Package (POP) Technology
- Connected to Color Touch Screen Display Running Windows CE



- Three Kinetis K10 ARM Cortex-M4 Processors
- PID Control Loop Regulating Temperatures to 0.005°C
- Smart Battery System (SBS)
- Interface with:
 - RFID Reader
 - Thermoelectric Cooler (TEC)
- Xilinx Spartan-6 FPGA
 - High-Speed Data Manipulation, Compression, and Transmission

Integrated Controller Area Network (CAN) transceivers were used for inter-processor communications and synchronization, employing a multi-channel messaging layer developed in-house. The system also featured Presco's proprietary firmware update library, which provides reliable firmware update capabilities through virtually any interface including CAN, I2C, Ethernet, Modbus, and Serial.