

# Medical & Life Sciences

Project  
Management



Mechanical  
Engineering



Systems  
Engineering



Electrical  
Engineering



Software  
Engineering



## CYTOMETRY SYSTEM AND DISPOSABLE CARTRIDGE FOR CLINICAL DATA GATHERING

### APPROACH

- Started with a feasibility prototype and fully designed a complete repeatable product for verification and validation
- Established baseline requirements for 61010 compliance
- Established key performance requirements to allow repeatable data and a fast cycle time
- Ensured design used automation to minimize human error  
Created multidisciplinary team to allow for close communications with client and subcontractors

### RESULTS

- Achieved rapid sepsis diagnostic score rate—from sample to score in 5 minutes
- Designed precision pressure and dynamic temperature control system for faster results
- Completed regulatory manufacturing documentation
- Completed design of disposable cartridge assembly and transferred to manufacturer

### KEY TECHNOLOGIES

- OpenEmbedded/Yocto Linux, IMx6 application processors, Python
- Precision optics, temperature, and pneumatics system
- Sub-micron three-axis motion system with vibration isolation
- Volume manufacturing design of tooling and contract manufacturer setup for the disposable cartridge

