

Reengineering the Controller Board of an NLF Pump System

The Client

Headquartered in Massachusetts, US, our customer is a global leader focused on laboratory, analytical, measurement and control instruments; and life sciences support software.

The Challenge

To continue with altitude gains in technology, our customer felt the need to reengineer the obsolescence-facing controller boards of its NLF pump system for:

- RoHS-compliance
- Thru hole mount (THM) to surface mount technology (SMT) conversion
- Obsolescence prevention
- UL approval
- In-circuit test capability

The microprocessor based controller board, a 20x30 cm board, contained over 500 components in 150 types including analog, digital and power circuitry.

The Solution

The controller board was redesigned for RoHS-compliance, functional compatibility and component obsolescence-prevention. It was designed for testability and re-engineered from a 'retro-fit' perspective. In many cases, the logic was designed to reduce circuitry. No software change accompanied the reengineering exercise. Surface mount devices used in the redesign came with longer vendor support resulting in extended product lives. The prototype board that our team designed and developed ensured continuous production flow.

The Benefits

Apart from cost arbitrage, the customer benefited from:

- Extended product lives
- A seamless interface
- Minimal changes to production requirements

The Technology