

Digital Thread: How Our MES System Provides Complete PCBA Traceability



Shenzhen, Guangdong Aug 10, 2026 ([Issuewire.com](https://www.issuewire.com)) - What MES Captures

Our MES system records data at every stage of production. Before assembly, it captures component lot numbers, date codes, and supplier information; incoming inspection results for each component batch; and MSD floor life tracking and baking history. During assembly, it records SMT machine placement data per board, reflow oven temperature profiles, SPI, AOI, and X-ray inspection results, and functional test data and operator identification. After assembly, it documents rework history and technician identification, final OQC results and packaging information, and shipping destination and date.

How the Digital Thread Works

Each PCB panel receives a unique barcode or Data Matrix code at the start of production, scanned at every process step to link the board to all data generated at that step. Components are scanned at feeder loading, linking specific reel lot codes to specific board serial numbers. Inspection and test results are automatically uploaded to the MES database linked to the board ID. The result is a complete manufacturing history for every individual board in seconds.

Applications of Complete Traceability

This comprehensive traceability enables rapid response to component recalls, identifying exactly which boards contain recalled lots without quarantining unaffected production. It supports root cause analysis by tracing defects back to specific component lots, process parameters, or operator actions. It provides audit evidence for regulatory compliance in medical, aerospace, and automotive applications. It enables

process improvement by correlating downstream failures with upstream conditions.

Customer Access to MES Data

We provide customers with secure access to MES data for their orders, including online viewing of inspection images and test results, downloadable reports in customer-specified formats, real-time production status tracking, and historical data retention for the life of the product. This transparency builds trust and reduces time spent on status inquiries.

Continuous Improvement Through MES Analytics

Beyond individual board traceability, MES aggregates data for process analysis. We monitor yield trends by product line and by shift, analyze defect Pareto by type and location, correlate component failure rates with suppliers or date codes, and identify process parameter optimization opportunities. This analytics capability drives continuous improvement across all our operations.

Complete traceability is not just a regulatory requirement—it is a competitive advantage. Our MES system ensures that every board we build has a complete, accessible manufacturing history, giving you confidence and control over your supply chain.

Do you need complete visibility into your [Pcba Manufacturing](#)? Contact us to learn how our MES-driven traceability can provide the documentation and confidence your products require.

Media Contact

Shenzhen STHL Electronics Co., Ltd.

*****@sthlpcba.com

<https://www.sthlpcba.com/>

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