

HCLTech | Supercharging
Progress™

Obsolescence Engineering Services

For the semiconductor
ecosystem



Obsolescence Engineering is becoming increasingly critical for the semiconductor ecosystem as the shorter life span of the components is posing a severe sustenance threat to manufacturers of equipment with long lifecycles. This mismatch in component and equipment lifecycle requires active obsolescence management with expertise and knowledge in the mechanical, electrical and software in the semiconductor industry.

HCLTech, with its excellent obsolescence management and deep engineering capabilities, provides a comprehensive sustaining solution for obsolescence issues faced in the industry.

We are the leading Engineering and R&D services (ERS) organization offering engineering services to semiconductor OEM, Fab and OSAT. We have over 22 years of experience in the semiconductor domain covering process, inspection and test equipment.



End-to-end expertise in Software, Electrical and Mechanical engineering

We have vast expertise in dealing with the challenges and complex needs of top players of the semiconductor ecosystem through our breadth of obsolescence engineering services.

Service map of obsolescence engineering



Component EOL Analysis

- EOL analysis
- FFF replacement
- EOL management



Re-Engineering

- Legacy PCBA (OEM)
- COTS PCBA
- Subsystem components
- OEM & COTS (EE & ME)
- Vendor interaction



Part Qualification

- FFF part validation
- COTS module qualification
- ESS & Reliability



Value Added Services

- Proactive EOL
- BOM rationalization
- Counterfeit part qualification



Test Fixture

- Legacy functional test fixtures
- Board level
- Sub-system level
- ECO management



Software Product Support

- Re-engineering
- Porting
- Code re-factoring
- Product sustenance

Part obsolescence – 3R approach

With our own industry-best 3R approach– Research, Recommend and Re-engineer, we give our customers an edge in tackling obsolescence issues and extending the life of equipment and legacy tools.



Research

- A short-term solution or quick fix
- Locating global inventory
Identification of EOL and last time buy opportunities
- Part number change identification due to RoHS compliance/manufacture acquisitions
- Implement changes through engineer



Recommend

- Long-term solution
- Alternate source identification from manufacturers of similar parts
- Form-Fit Functional (FFF) compatibility evaluation
- Feasibility analysis by comparing key specifications
- Impact and interference check for next level assembly
- Identification of nearest supplier and quote acquisition for new part
- Application testing when needed
- Implementation of changes through engineering change process



Re-engineer

- Re-engineer or re-design for parts without FFF or functional replacement
- Follow HCLTech's design process to redesign

Component obsolescence engineering expertise

Our component obsolescence covers all equipment parts across PCBA components, Electrical panel components, Motors and Subsystem components.

PCBA components

Resistors, capacitors, inductors, diodes, transistors, logic gates, voltage regulators, detectors, ADC, DAC, memory, FPGA, microcontrollers, microprocessors, fuse, LED, interconnects, sensors, filters, relays

Electrical Panel comp.

Contactors, terminal blocks, fuses, MCBs, MCCB, RCCB, power supplies, transformers, PLCs, VFDs and switches

Motors, Sensors, Actuators

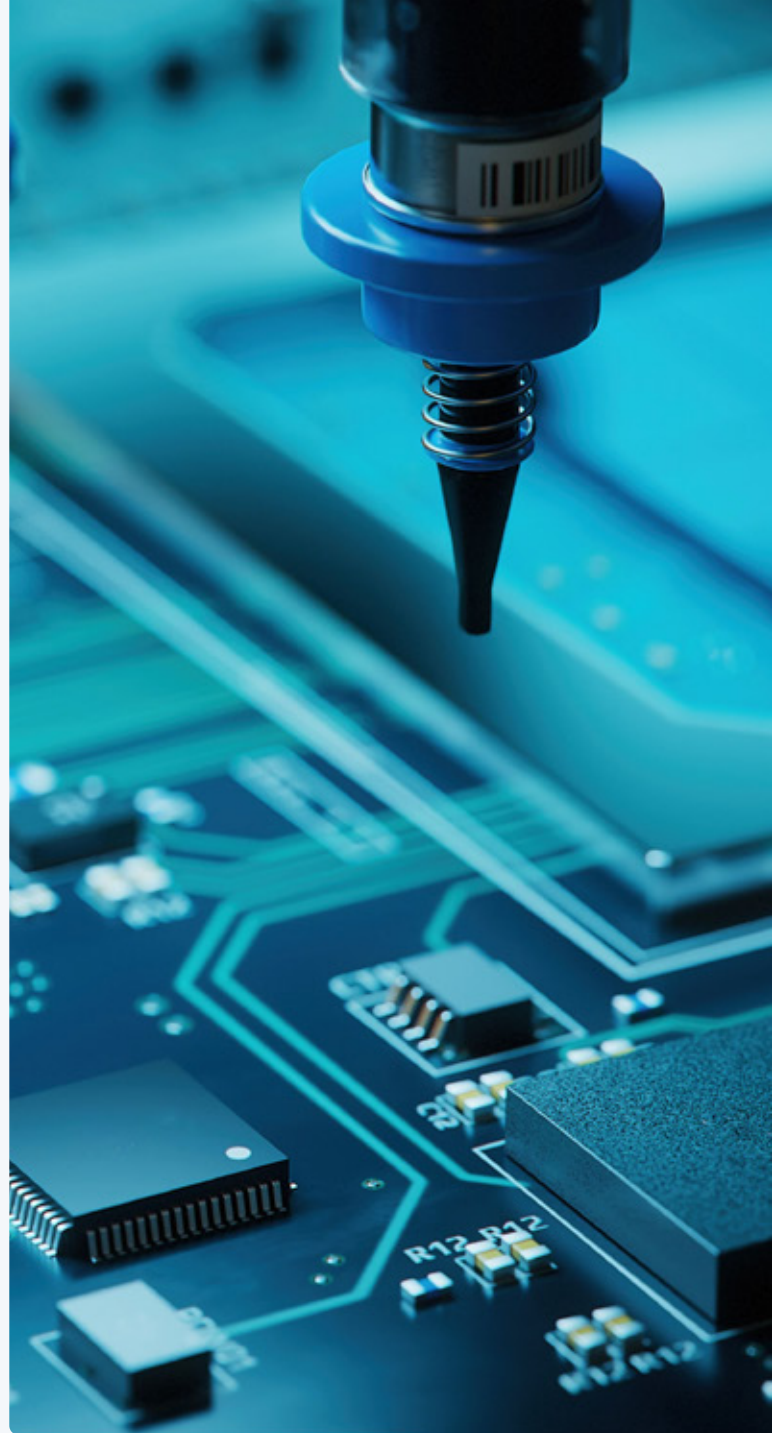
Brushless DC and AC motors, servo and steppers motors, motors controllers, Tachos Pressure sensor, temperature sensors, level sensors, photoelectric sensors, piezoelectric actuators and CDA valves

Subsystem components

IO controllers, DNET controllers, ethernet switches, AC boxes, fan assemblies, power distribution boxes

Service offerings coverage


- BoM scrutiny/ scrubbing
- Component status identification (Active/ Obsolete/ NRFND/ Green)
- Approved Vendors List (AVL) identification and sorting
- Part number and symbol creation
- Design tool support
- Database management
- Vendor interaction for ordering samples
- Alternate identification from AVL
- Alternate: High lead time and High MoQ components
- PLM update
- PCN, EoL status and review support
- Part watch and BOM sustenance
- FFF equivalent
- MPN identification and update
- Environmental compliance audit
- RoHS and REACH certificates/ test reports collection, testing
- MDS data collection per ISO 17050 and other relevant standards
- Tin whisker study and mitigation



Why HCLTech?



Standardized process flow with well-defined SLA



Strong OEM contacts



Multiple efficient ways for data collection



Experience in handling high volume of components



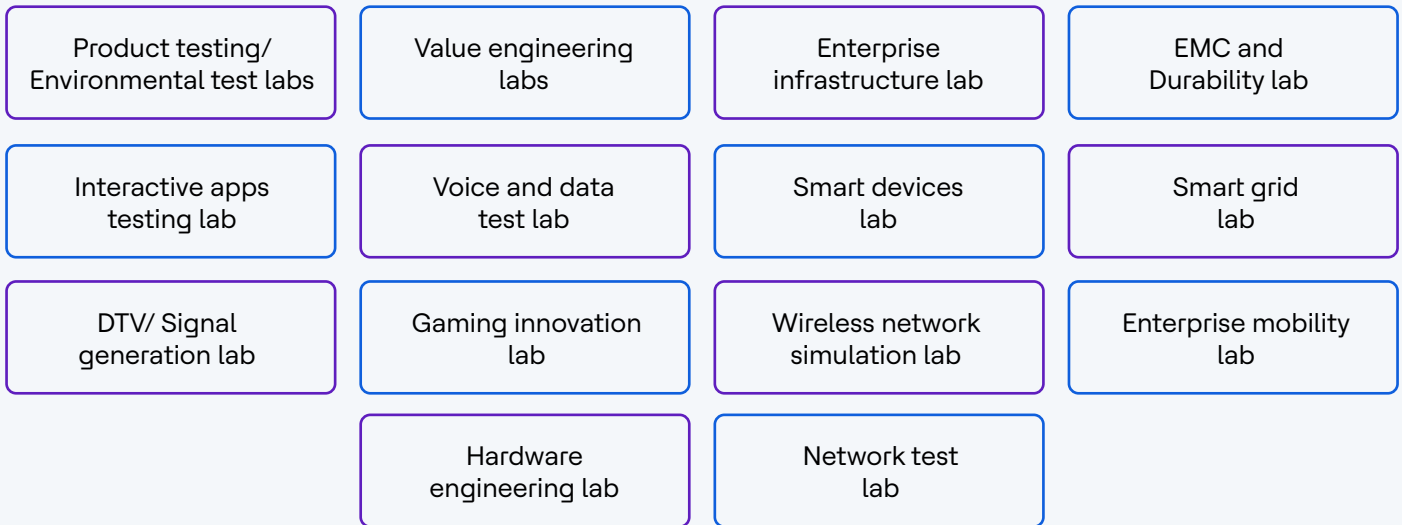
Legacy product Obsolescence Management



Manufacturing line support

Labs and Testing infrastructure

We possess best-in-industry labs and testing infrastructure for the semiconductor ecosystem. Our expertise, continuous investments and upgradations in our infrastructure leverages us in supercharging our customer's growth transformation.



\$ 50M investments across
10+ labs, 40
state-of-the-art
development centers in 6
major locations in India
and 5 other locations
globally



80 customer-specific labs
of **+10K** clean rooms for
high sensitivity
instruments in
semiconductor and
medical devices



Software, hardware and
mechanical setups with
latest high-speed
measurement equipment



Case studies

PCBA - Re-engineering for legacy analog IO board (OEM design)

Customer:

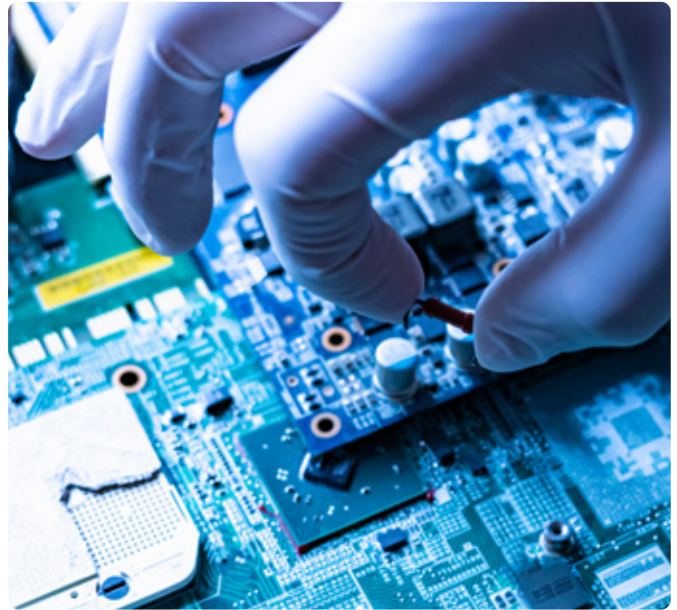
A leading supplier of semiconductor equipment

Problem:

The legacy 68000 series controller, CPLD and memory devices used were obsolete. So, the customer needed production support and field replacement requirements and ensure cost optimization on the current board.

Customer benefits:

- Cost reduction due to design optimization
- Design documentation for legacy boards
- Design source files for legacy boards
- Product sustenance for next seven years



Throughput improvement upgrade

Customer:

A leading ion implanter equipment manufacturer (200 mm)

Problem:

Customer wanted an upgrade for legacy tools, design 200mm version of wafer load/unload and wafer holder assembly.

Customer benefits:

End-to-end ownership of wafer transfer module redesign to improve number of wafers handled per hour by 30 percent



Tacho EoL

Customer:

A leading supplier of semiconductor equipment

Problem:

The brushed DC motor with gear, used to rotate objectives in microscope reached EoL. So, the customer wanted to look for an alternative Tacho or small DC motor (used as a Tacho) to fit with the existing motor and gear.

Customer benefits:

- Provided alternate solution without major change in PCB
- Solved the EoL issue for the customer



Case studies

End-to-end ownership of redesign and deployment of device interface/controller board

Customer:

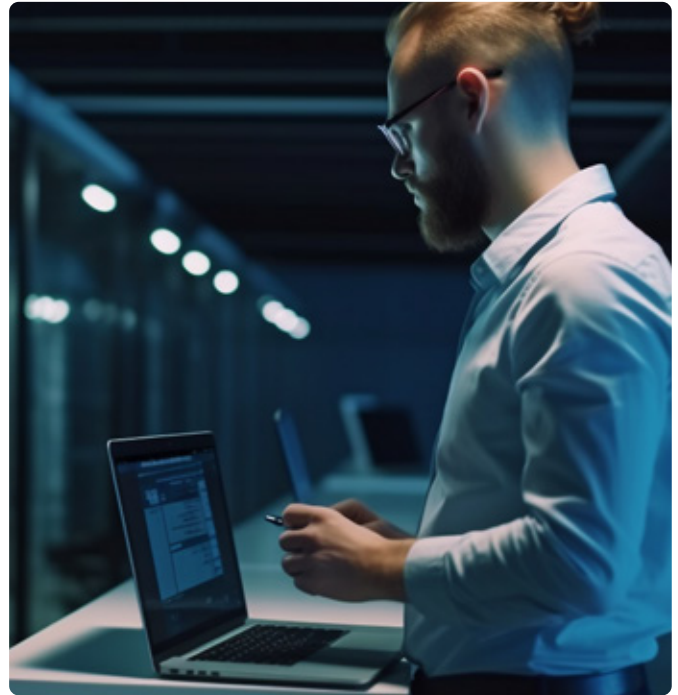
A leading supplier of semiconductor equipment

Problem:

Reverse engineering of items/functions on the board where design docs are unavailable. Also, Customer wanted to overcome CPLD/memory devices obsolescence issues through, PCBA design/development for VME line card HW, SW, CPLD design and BOM obsolescence analysis.

Customer benefits:

- Cost reduction due to design optimization and design documentation for legacy boards
- Design source files for legacy boards
- Product sustenance for next seven years



Reduce cost of ownership

Customer:

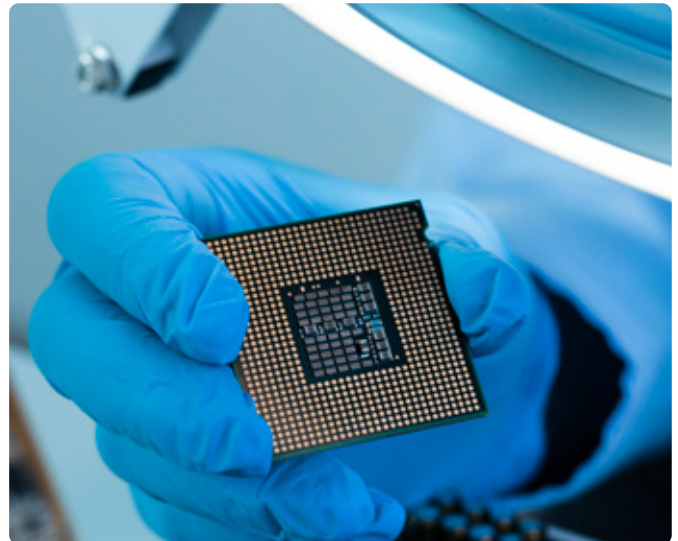
A leading supplier of semiconductor equipment

Problem:

Customer wanted to implement multiple lifetime improvement projects on subsystems, such as energy filter, high-voltage components, source assembly, considering customer-specific recipe conditions.

Customer benefits:

- Improved the lifetime of subsystem modules
- Extended overall product lifetime
- Enabled consumable cost optimization



Contact us

Learn more about how HCLTech can help you in supercharging your semiconductor innovation journey. Reach us at hclsemi@hcl.com.

HCLTech | Supercharging Progress™

HCLTech is a global technology company, home to 225,900+ people across 60 countries, delivering industry-leading capabilities centered around digital, engineering and cloud, powered by a broad portfolio of technology services and products. We work with clients across all major verticals, providing industry solutions for Financial Services, Manufacturing, Life Sciences and Healthcare, Technology and Services, Telecom and Media, Retail and CPG, and Public Services. Consolidated revenues as of 12 months ending March 2023 totaled \$12.6 billion. To learn how we can supercharge progress for you, visit hcltech.com

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