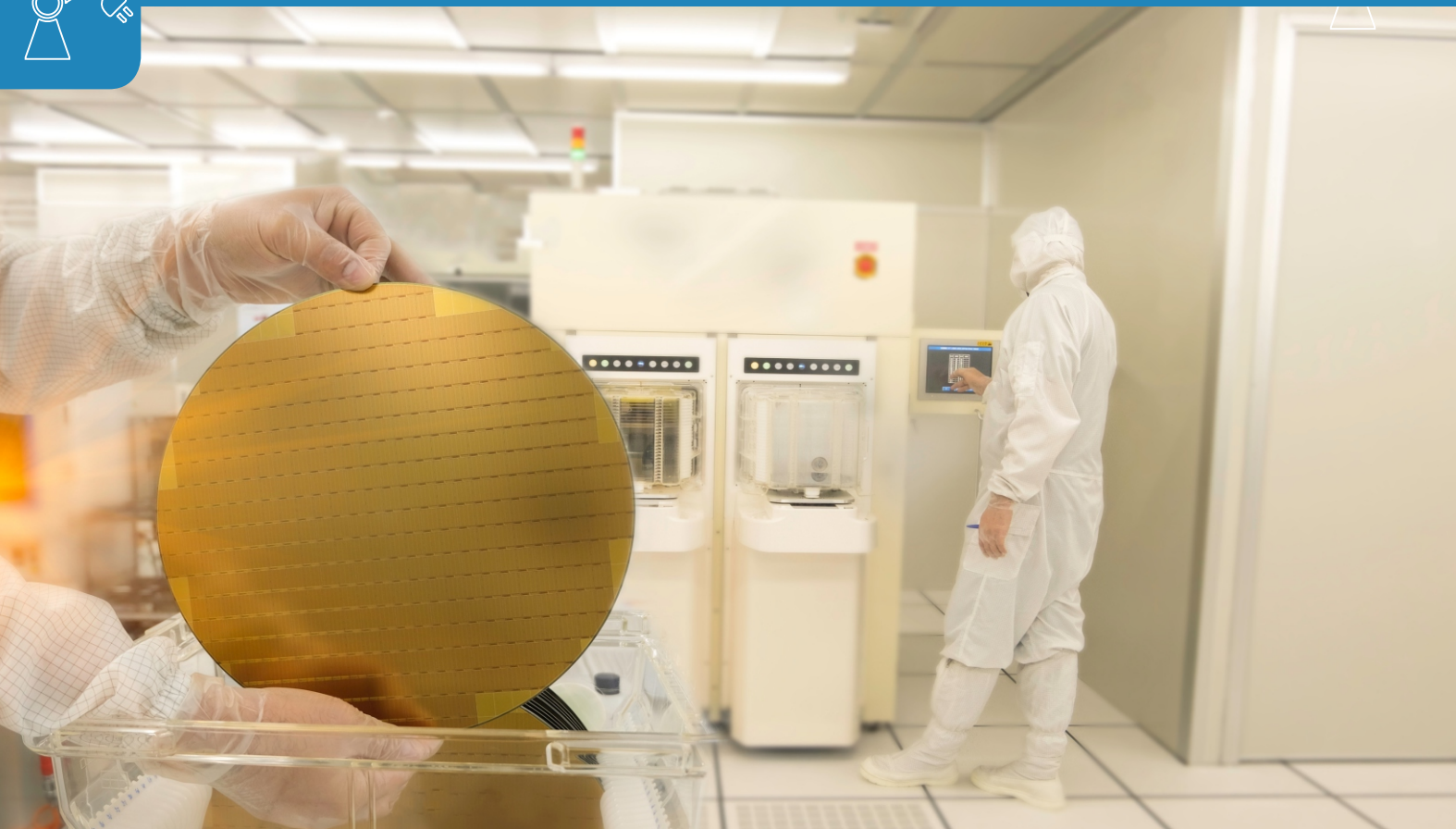




Hi-Tech

ENGINEERING SERVICES FOR SEMICONDUCTOR EQUIPMENT OEMs



Right partner for the engineering needs of your product to reduce time to market, control R&D costs, improve quality, ensure SEMI standards compliance and create differentiating features.



Semiconductor manufacturing equipment OEMs face a cyclic industry and thus need to reduce the time to market for their products to successfully ride the upcycle when the industry recovers. The products also need to be fully compliant to the stringent SEMI standards to pass the Tool Acceptance Tests at the end customer fabrication plants. Along with that is the digital disruption brought in by technologies like Artificial Intelligence, Big Data, etc.

PROVEN RESULTS

Reduced time to market by
30% for a new SEM Metrology equipment with a local-global team to working as an extended R&D team

Developed a test automation suite and test management framework to improve product quality by
20%

Reduced R&D costs by
30% for a Wafer Inspection Equipment OEM by creating an engineering team working as extension to customer's R&D team

Improved market share by creating differentiating features for Automatic Defect detection and classification by leveraging AI and Big Data



Award Winning Solution Accelerators

Solution Accelerators from Tool Control to Factory Automation

QuEST has the right domain expertise in end to end product engineering, digital enablement and automation you might be looking for. For over two decades, semiconductor OEMs have relied on our worldwide fab experience, equipment automation capabilities, pool of engineers with deep experiences at deploying solutions at all major fabs. QuEST offers a host of award-winning solution accelerators like Equipment automation Framework, Inspection Module Automation Framework, GEM Standards, EDA Standards and Fab Host Simulators.

A Proven Partner Offering Defined Solutions

A Proven Partner Offering Defined Solutions QuEST's unique hybrid-managed services model is designed to deliver proven, end-to-end solutions to help our customers in all phases of development - from concept to production.

Fab & foundry experience

Experience working in all major fabrication plants around the world, ensuring equipment's SEMI standard compliances at the fab and ensuring that the equipment passes Factory Acceptance Tests

QuEST Differentiator

Domain knowledge

24+ years of engagement with semiconductor equipment OEMs in developing frameworks, leveraging the acquired knowledge to develop new products and sustaining existing products

Process Knowledge

Monitoring and control of the process modules of various equipment - etch, deposition, implant, inspection, metrology, furnace, stocker, sorter, dicing, and more

Global Strategic Partnerships

Engagement with 3 of top 10 Semiconductor equipment OEMs

Comprehensive Engineering solutions

End to end product engineering solutions and solutions for enterprise, manufacturing and digital transformation

Ecosystem partner

Authorized solution provider to companies which manufacture robots and clusters for the equipment OEMs

Strategic Investments

3000 person years of engineering experience with semi equipment OEMs & fab, 2 customer labs, 2200 square feet lab for equipment automation and Inspection Equipment, suite of solution accelerators right from Tool Control to Factory Automation including equipment automation frameworks & fab host simulator compliant to SEMI GEM, EDA, PV2 standards





CASE STUDY

Test automation including Equipment simulator

A major European component inspection equipment manufacturer partnered with QuEST to develop a comprehensive test automation framework to be integrated into a DevOps environment. The customer also had the problem of equipment availability during integration testing.

As a start, QuEST developed a software simulator with all hardware communication protocols, programming interfaces, performance tuning mode and an intuitive user interface to simulate possible errors and alarms of hardware equipment. Further, test automation tools were benchmarked and identified TestComplete as the test automation tool. Then, the test scripts were designed and developed and integrated into the Continuous Integration tool chain.

PROVEN RESULTS

INCREASED TEST COVERAGE BY 50%

HIGHLY CONFIGURABLE SIMULATOR THAT CAN BE CONFIGURED FOR VARIOUS HARDWARE

IMPROVED TOOL AVAILABILITY BY 60%

SOLUTION ACCELERATOR

Automation of semiconductor wafer etch equipment leveraging QuEST solution accelerator

A major Korean OEM wanted to focus on innovating their hardware practice for their etch equipment. The client required tool automation software for their array of 200mm and 300mm line of etch equipment as well as host connectivity software compliant to SEMI standards. Client wanted a partner to manage the entire software stack – equipment automation, factory automation.

QuEST leveraged its in-house tool control framework – ‘Falcon’ and configured the framework for the functionality and configuration of each equipment. Device interfaces using custom protocols were developed and integrated into Falcon. QuEST’s partnership with Brooks automation and pre-integrated robot interfaces were used to reduce the development time. Test automation framework was developed, incorporating SEMI standards compliance testing tools like CCS Envoy.

PROVEN RESULTS

TIME TO MARKET REDUCTION BY **6 MONTHS**



QuEST's breadth of engineering services - Access to a Large Eco System

QuEST's extensive domain knowledge and engineering experience makes us the ideal partner for all Engineering requirements for your products.

QuEST provides Engineering services for taking your concept to Product, involving NPI, sustenance and After market.



Services offered to Semiconductor Manufacturing Equipment OEMs

Product Engineering

- Product design and development (Embedded, Software, Mechanical)
- Product sustenance, Product modernization, Porting
- SEMI standards compliant software design and development
- Inspection, Metrology, Process equipment automation
- Image processing
- Equipment Automation software, Factory automation software
- SEMI standards compliance testing
- Factory acceptance tests
- Test automation, DevOps
- User experience
- Obsolescence management

Enterprise

- Application development and maintenance
- Reporting and Visualization
- Data engineering
- Asset management system
- Vendor management system
- Manufacturing Information Systems (MIS)

Manufacturing

- Process Planning
- Tool and Fixture Engineering (Especially they use Pneumatic Fixtures and Single minute exchange Dies)
- CNC and CAM Programming
- Inspection and Quality Engineering
- Cost Engineering
- Shop Floor management
- Manufacturing Execution Systems
- Digital Manufacturing - Planning and Simulation



QuEST provides an array of Solution accelerators to reduce your time to market.

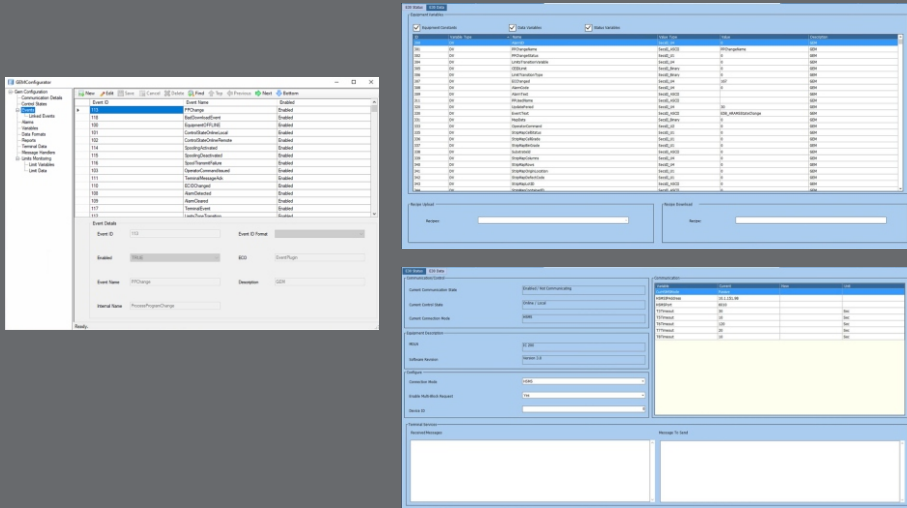
Falcon

Falcon is a highly configurable and customizable framework to develop equipment automation software for semiconductor manufacturing industry.



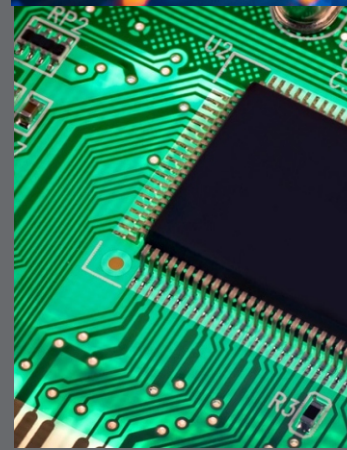
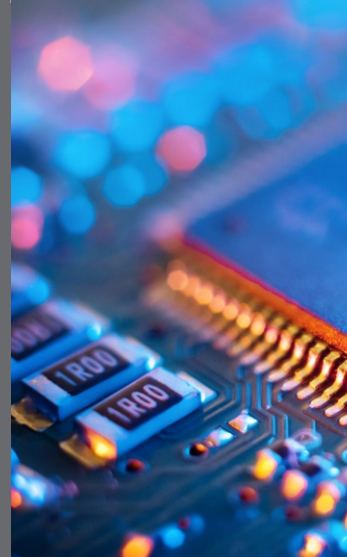
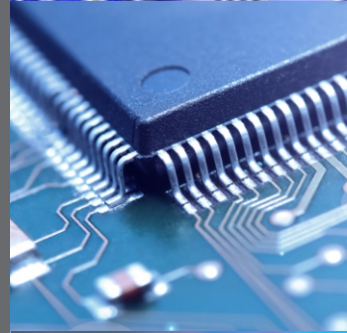
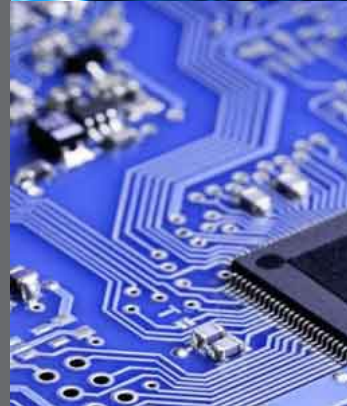
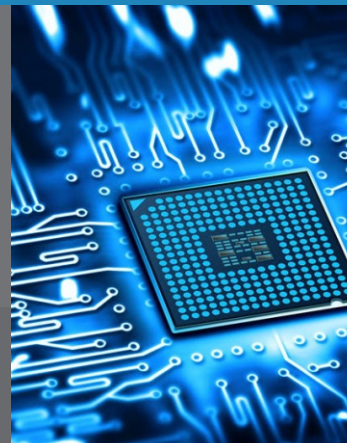
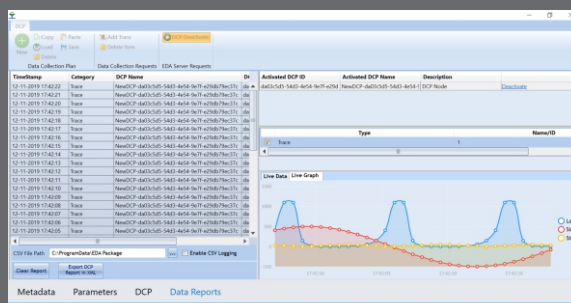
FalconConnect

FalconConnect is a comprehensive and robust solution for 200mm and 300mm host connectivity which is fully complied with SEMI standards. Verified with CCS Envoy test plans and deployed in Fabs worldwide.



FalconEDA

FalconEDA is an integrated software equipment connectivity solution which is fully compliant to all SEMI EDA standards.





We Can be Your Engineering Partner of Choice

Your success translates to our satisfaction. We monitor our resources meticulously so that your team can stay focused on advancing vital projects. We help you to innovate across the board, scale product development and production, improve quality, manage global supply chains, and control costs. Moreover, we build flexibility and scalability into every job we do.

The QuEST Difference

As the only business partner that delivers both strategic managed services and best-cost engineering solutions around the globe, we engage our customers with a unique synergy. We enable them to maintain their manufacturing leadership in essential industries, while riding the wave of digital revolution along with all the challenges and opportunities it brings. Together, we help them create the frontier of a safer, more reliable, efficient and sustainable world.

COMPREHENSIVE

Being quality conscious and process oriented while striving for continuous improvement, we commit to what we deliver, and deliver what we commit.

CUSTOMIZED

We believe that every change is an opportunity to learn, improve and contribute.

COLLABORATIVE

Collaboration is our strength. Our team works across geographies, organizations and cultures to do more for you.

COMMITTED

We strive to exceed expectations at all times and in all we do. We are passionate about empowering you, our customer.



Talk to Us Today

To learn how QuEST Global's transformative engineering solutions can help you succeed, contact salesenquiries@quest-global.com or visit us at quest-global.com

For more than 20 years, QuEST Global has been a trusted global product engineering and lifecycle services partner to many of the worlds' most recognized companies in Aero Engines, Hi-Tech, Aerospace & Defense, Transportation (Automotive and Rail), Power and Industrial, Oil & Gas and Medical Devices industries. With global presence in 14 countries, 65 global delivery centers and 12,000+ personnel, we are at the forefront of the convergence of mechanical, electronics, software and digital engineering innovations to engineer solutions for a safer and cleaner world. QuEST's deep domain knowledge and digital expertise aim at helping customers accelerate product development and innovation cycles, create alternate revenue streams, enhance consumer experience and make manufacturing processes & operations more efficient.

