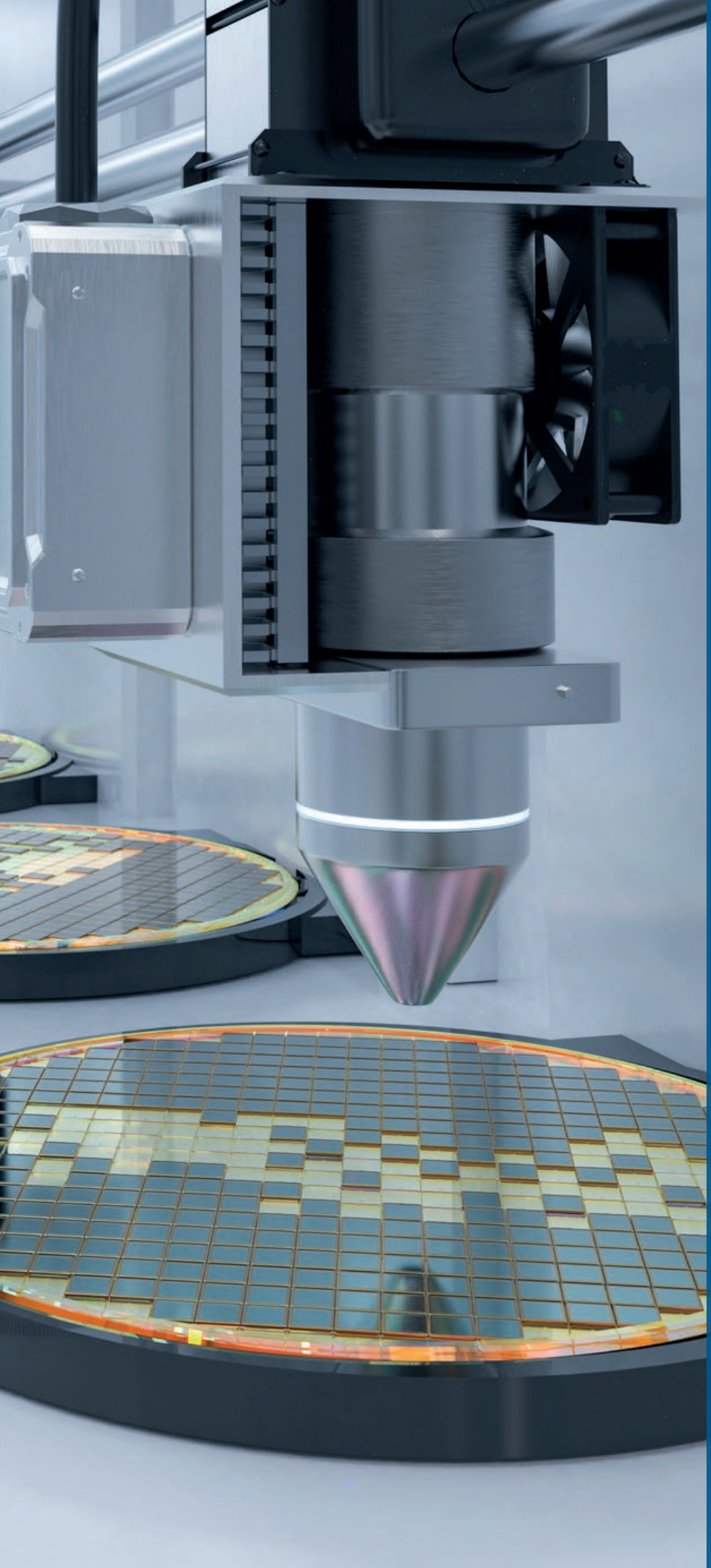


Critical Manufacturing MES V10 for Semiconductors

Expect more from your MES

A powerful new paradigm for semiconductor fabrication

Demand for semiconductors grows and shrinks very quickly. In either scenario, you need an MES that provides comprehensive command and control to increase yield and throughput while adapting to new technologies because efficiency, flexibility, and agility are essential.

Supply chain constraints, labor management, shortening time-to-market, and increased package complexity are some challenges facing semiconductor fabs today, and a modern MES with advanced capabilities can prove its value quickly.

Expect more from your MES

The Gartner Critical Capabilities report places Critical Manufacturing as the number one MES solution for repetitive/batch flow complex discrete manufacturing and as a leader in the Magic Quadrant. Critical Manufacturing MES is the best-in-class, most comprehensive top-tier Manufacturing Execution System for semiconductor manufacturing and is easier to use than ever before. It will advance your digital transformation to the next level with Industry 4.0 ready out-of-the-box modules to drive innovation and increase connectivity. It offers real-time visibility across manufacturing operations with an advanced IoT data platform, adaptive scheduling to meet shifting demands, SEMI E142 support, and other advanced capabilities to give your fab complete real-time command and control of shop floor data and performance. The Critical Manufacturing MES is the market-leading solution with a selection of pre-integrated modules and an advanced architecture for cloud, on-prem, or hybrid deployment.

Meeting your needs at every phase

Semiconductor manufacturing involves skilled people, complex equipment, continuously evolving products and flows, and enterprise-level infrastructure. Increasing quality and final yield targets combined with smaller node technology are increasingly important topics. Critical Manufacturing MES integrates shop floor information and functionalities into a single source of truth for contextualized manufacturing data to make informed strategic business decisions. When you expect more from your MES, it will support your entire operation with real-time performance data, identify issues, and solve problems before they impact production.

Why Critical Manufacturing MES

Critical Manufacturing MES is recognized as a top-tier manufacturing solution in the Gartner Magic Quadrant and the Critical Capabilities Report.

SEMI E142 support

Semiconductor manufacturing deals with complexity and precision not seen in many industries. The Critical Manufacturing MES improves semiconductor fabrication efficiency by supporting the SEMI E142 substrate mapping standard to make it easier for fabs to trace, store and transmit information and layout of the components in their products.

Enhance performance with adaptive scheduling

Every manufacturing facility must create production schedules optimized for the supply chain and process cycle times. The MES needs to adapt quickly and automatically to changes or disruptions to the manufacturing schedule. Critical Manufacturing MES has adaptive scheduling to make the system more flexible and resilient, enhancing system performance.

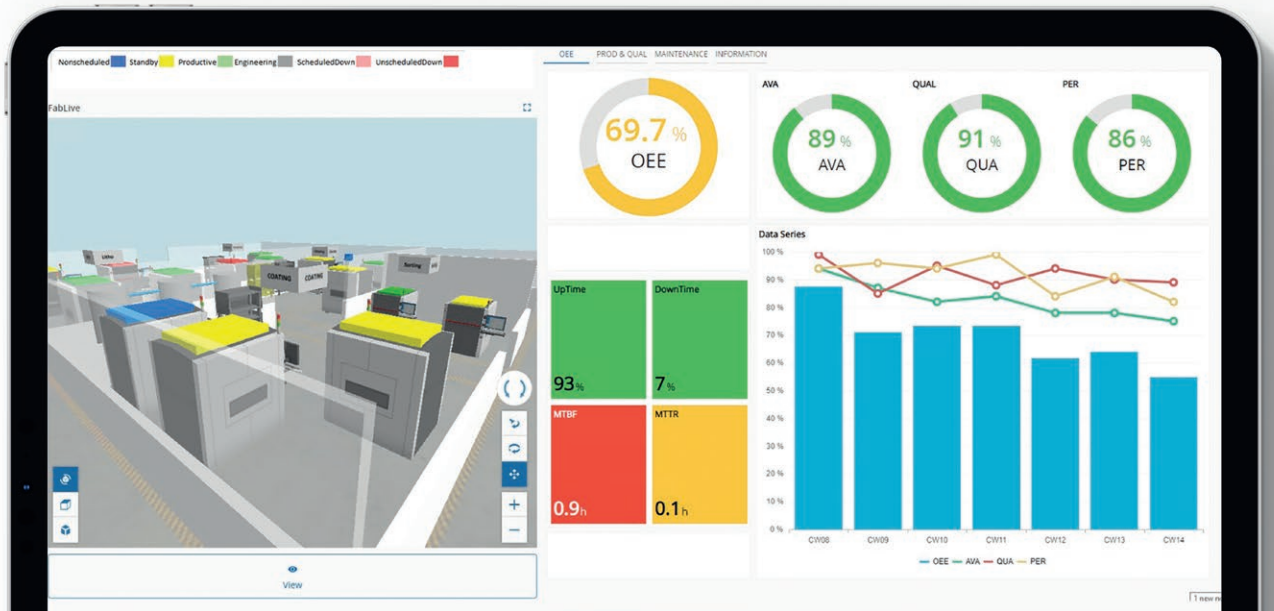
Total data analytics platform

A modern manufacturing facility generates large volumes of data through multiple disparate operating systems and IoT sensors. However, a strong data analytics platform is required to organize and contextualize the data, making it valuable for proper decisions to improve performance in every facility. The Critical Manufacturing MES generates valuable insights using machine learning and other advanced analytics tools to deliver better business outcomes.

Real-time shop floor visibility

Shop-floor visibility lets you know what production decisions need to be made and how well those are performing, thereby reducing human errors and improving OEE. Critical Manufacturing enables real-time enterprise-wide visualization and monitoring with fabLIVE Digital Twin, a real-time virtual window into the shop floor with interactive performance monitoring.

- Shorter cycle times
- Improved yield
- Improved OEE
- Reduced costs
- Improved order fulfillment
- Increased shop floor visibility
- Increased speed of innovation
- Enhanced end-to-end traceability



Advanced semiconductor use cases

Semiconductor manufacturers face significant challenges related to the need to properly optimize and manage the complexity of high-mix production. Issues of driving down costs while focusing on delivering products on time, with quality cannot be done without an integrated MES.

1.

Recipe management

A centralized recipe management system (RMS) ensures that recipes used in each piece of equipment in each process step are controlled, and the usage is guaranteed to be human error-proof. Automatic recipe download using equipment integration is key in today's increasingly highly complex products and processes.

2.

Send-ahead wafers

It is common in Semiconductor processes to send a single (or more) wafer ahead of the rest of the lot to validate quality. The remaining quantity can continue the process until reaching the desired process step or stop altogether while waiting for the results.

3.

SEMI E142 support

With the increasing complexity of semiconductor products, and different substrate types, including wafers, strips, frames, and other requirements, a more robust system to map and trace all the dies included in a single package is necessary. CM MES introduces the support for SMI E142 substrate mapping specification…

4.

Process queue time constraints

Several processes in semiconductor manufacturing are extremely time sensitive, and having the ability to control (enforcing, blocking, and warning about material movements) time windows between different stages and movements is crucial to ensure the correct processing and maximum product conformance with the specifications.

Critical Manufacturing MES V10

Drive next-level digital transformation for Industry 4.0 in your factory with the most complete, modular MES

Critical Manufacturing MES is an essential part of your Manufacturing Operation Management (MOM) System for semiconductor manufacturing. The advanced capabilities enable complete shop floor connectivity and data integration for total fab visibility. Shop-floor visibility lets you know what production decisions need to be made and how well they perform.

Manufacturing enterprises need a holistic view of their operations. The Critical Manufacturing MES provides a data analytics platform to organize and contextualize large volumes of data from multiple disparate systems to improve performance in every line and facility.

Expect more from your MES and empower your enterprise using data from your fab to make digital transformation and Industry 4.0 a reality with advanced capabilities from Critical Manufacturing.

Solution map

Critical Manufacturing MES V10 for Semiconductors

Advanced Planning and Scheduling						
Manufacturing Operations	Materials & Containers	Resource Tracking	Routing & Dispatching	Data Collection	Master Data Management and Change Control	Tasks, Checklists & e-signs
Visibility & Intelligence	Dashboards	BI Cards	Data Warehouse	fabLIVE: Factory Digital Twin	Alarm Management	Augmented Reality
Quality Management	Sampling Based Inspection/AQL	Statistical Process Control (SPC)	Exception Management	Document Management	Experiment Management	
Operational Efficiency	Maintenance Management	Order Management	Labor Management	Costing	Advanced Layout & Printing	Material Logistics
Integration & Automation	Enterprise Integration	Equipment Integration: Connect IoT	Recipe Management	Wafer Mapping	Factory Automation	
IoT Data Platform						

Low Code Platform

Critical manufacturing
an ASMPT company

Critical Manufacturing provides the most modern, flexible and configurable manufacturing execution system (MES) available. Critical Manufacturing MES helps manufacturers stay ahead of stringent product traceability and compliance requirements; reduce risk with inherent closed-loop quality; integrate seamlessly with enterprise systems and factory automation and provide deep intelligence and visibility of global production operations. As a result, customers are Industry 4.0-ready. They can compete effectively and profitably by easily adapting their operations to changes in demand, opportunity or requirements, anywhere, at any time.

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