



Applied SmartFactory® FullAuto

An automated execution system that improves factory productivity and eliminates white space by executing advanced real-time event-based factory automation workflows

INDUSTRIES

- Semiconductor wafer manufacturing
- Semiconductor assembly and test
- Display manufacturing

FEATURES

- Eliminate white space on tools
- Incorporation of WIP management BKM from industry
- Combination and integration of multiple data sources in real time
- Out of box integration with SmartFactory Dispatching solution
- Reaction to factory events in real-time
- KPI reporting and dashboards

BENEFITS

- Provides real-time response to factory events
- Reduces number of expert operators
- Increases profitability
- Reduces the integration effort for synchronizing CIM applications
- Improves productivity by lowering cycle time and reducing variability

CHALLENGES

Semiconductor and OSAT manufacturers today are striving to optimize production and implementation. Some of the key challenges these manufacturers face include:

- Reacting to events in real-time to minimize white space on tools
- Maximizing bottleneck tool utilization
- Reducing the need of expert operators to manage production
- Managing shortages of industrial engineering experts and development resources
- Handling delays in deployment, resulting in long payback times

SOLUTION DESCRIPTION

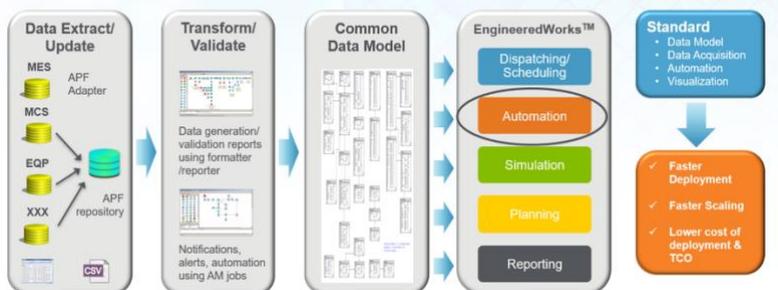
FullAuto jobs enable execution of pre-staging of WIP, release lots and adjust load balancing of production equipment through “what next,” “where next” rules to improve the use of product, carriers, equipment and labor. A major advantage of the FullAuto solution is the ability to reduce white space on tools and reduce the need of expert operators to manage factory operations. FullAuto jobs are customized for a given factory, contain multiple criteria, and can also handle many exception handling scenarios. As an out-of-the-box solution, it is deployed quickly to rapidly enhance factory operations. Tight integration capability is provided to key factory data sources with standard offerings for well-known manufacturing execution systems (MES), as well as custom capability for integrating to in-house MES and database systems.

APPLIED SMARTFACTORY PRODUCTIVITY SOLUTIONS WITH ENGINEEREDWORKS™

The common framework from data extraction to logic of dispatching is built on the Applied APF platform and EngineeredWorks

Applied SmartFactory® Productivity Solutions – Components

Common Framework from S&OP to Dispatching – Built on Applied APF® platform, Applied EngineeredWorks™ & Optimization



SMARTFACTORY SOLUTIONS WITH ENGINEEREDWORKS

EngineeredWorks is Applied's pre-built automation logic that executes on a proven Applied platform. EngineeredWorks increases speed-to-value for customers and provides quicker deployment times. When deploying SmartFactory FullAuto with EngineeredWorks, customers can cut deployment times by more than **50%** compared to custom deployments.

FullAuto Capabilities for Achieving Enhanced Factory Performance

✓	Event based Workflow Engine	Provides the ability to sense the factory events as they occur and then execute rule-based logic to drive execution in different CIM applications. Workflows are customized for a fab type, containing multiple operational scenarios and exception handling scenarios.
✓	Real-time Monitoring	Enables real-time factory monitoring, dashboarding and reporting capabilities; Reports are automatically executed and distributed based on event and time-based functionality.
✓	Real time data integration and storage	Integrates with shop floor production, material control and quality applications. Collects data from multiple sources via web services or message bus. Provides ability to subscribe to changes in RTD repository, reducing the need of additional integration for factory automation.
✓	Common Data Model	Supports common data model for all planning, dispatching, scheduling and simulation solutions. The solutions can be deployed, extended and rapidly deployed using this common data model.

**\$1M- 10M
PER FACTORY**

CUSTOMER RESULTS

FullAuto customers automate dispatch decisions and improve asset utilization, which drives greater returns on investment and profitability. Increase in fab performance reported publicly by customers using the core technology of the FullAuto solution, which include:

- **> 17%** reduction in delivery time, resulting in improved throughput for bottleneck tools
- **65%** reduction in the number of super operators in 200 mm fab
- Achieved **>95%** of automatic execution of lots within 8 months in 300 mm fab
- **20%** decreased move time of overhead hoist buffer (OHB)
- **10%** increase in tool utilization

PACKAGE CONTENTS

Designed around best-known methods for eliminating white space and responding to factory events in real-time. SmartFactory FullAuto offers proven technology in one package, which includes:

SOFTWARE

- FullAuto EngineeredWorks
- Activity Manager™ for Automation Module

The SmartFactory FullAuto solution is pre-integrated with the SmartFactory Dispatching and Reporting solution and is a pre-requisite for SmartFactory FullAuto solution.

SERVICES, TRAINING AND SUPPORT

- Pre-configured jobs for automated material control, automated lot and equipment transactions
- On-site deployment provided by an experienced Applied team
- First year Solution Services and technology maintenance
- User training

www.appliedmaterials.com
3050 Bowers Avenue, Santa Clara, CA 95054-3298 (408) 727-5555
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