

Applied SmartFactory® Scheduling

A predictive scheduling solution that improves productivity of key bottleneck areas in the factory.



INDUSTRIES

Semiconductor Wafer Manufacturing
Semiconductor Assembly & Test (ATP)



FEATURES

Co-optimize cycle time, throughput and yield

Incorporation of WIP management BKM from industry

Combination and integration of multiple data sources in real-time

Users can customize objective functions and constraints by themselves

Out-of-box area schedulers



BENEFITS

Improves productivity by lowering cycle time and or improving throughput and reducing variability

Reduces the manual effort for planning/scheduling decisions

Manage the critical queue time constraints while meeting cycle time/due date requirements

Reduce capex spending on bottleneck tools

Reduce the time to respond by rescheduling based on factory events

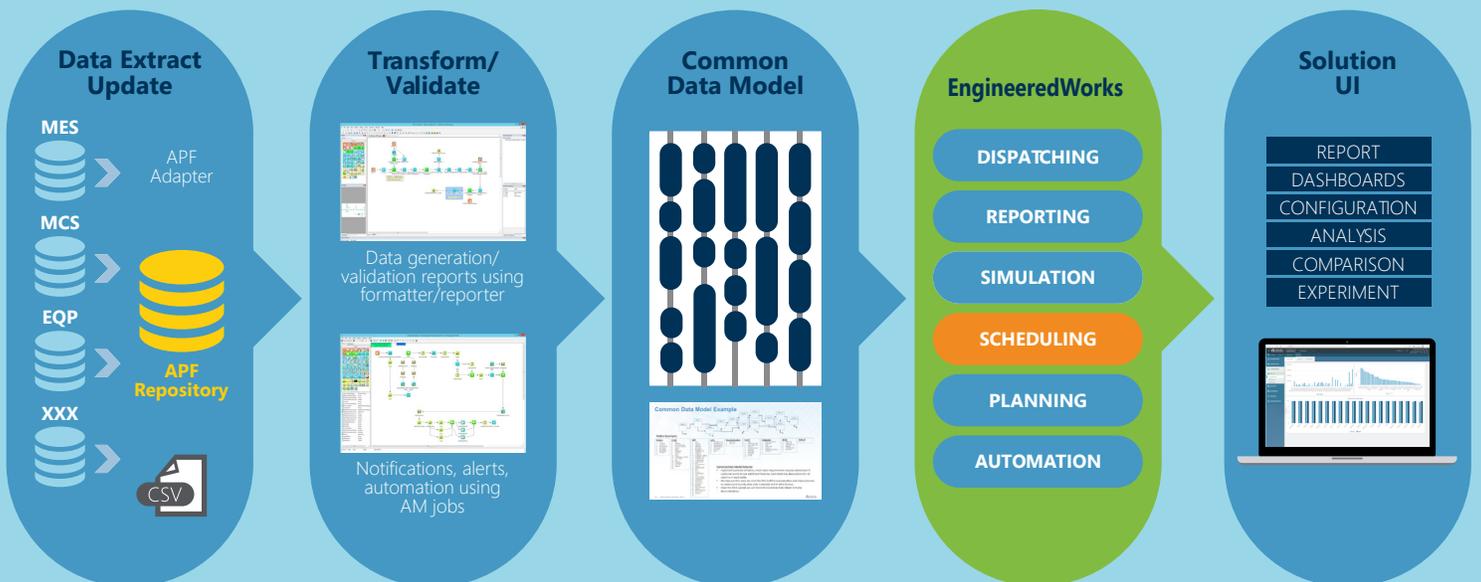


INDUSTRY CHALLENGES

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

- Consistently improve cost and control cycle time to maximize revenue
- Time spent in planning & managing for factory resources (higher product mix & volume)
- Companies are realizing that ATP productivity is key to improve the on-time demand and ensure the factory productivity gains in the fabs are not negated by low efficiency in the fabs
- Managing shortages of industrial engineering experts and development resources
- Handling delays in deployment, resulting in long payback times

SmartFactory Productivity Solutions Components



Common framework from dispatching to automation – Built on SmartFactory APF Platform ETM, Common Data Model (CDM), EngineeredWorks, Solution UI > Open Box Solutions



SOLUTION DESCRIPTION

This short-interval predictive scheduling incorporates factory-wide data from multiple manufacturing plant floor systems, and then runs this data through its prediction and scheduling engines to produce accurate, real-time production schedules. It schedules key bottleneck areas in the such as litho, wets/diffusion, chamber based tool and implant operations in front end and die attach, wire bonders, testers in assembly and test operations—optimizing throughput and improving on time delivery—using sophisticated algorithms that are not possible with dispatching systems alone. It also predicts the movement of all lots in the fab/factory and uses this information as one of the inputs to optimize the scheduling and dispatching decisions in the factory.

EngineeredWorks

DISPATCHING

REPORTING

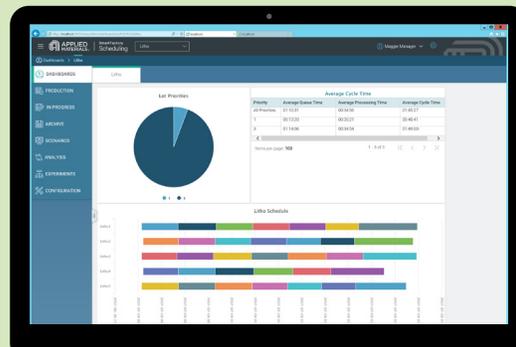
SIMULATION

SCHEDULING

PLANNING

AUTOMATION

Web-based for managing scheduling parameters and conducting what-if scenarios based on user privileges



Real-time monitoring and managing schedules based on factory events



SmartFactory Solutions with
ENGINEEREDworks®

Pre-built automation logic that executes on a proven Applied platform, increasing speed-to-value for customers and provides quicker deployment times.

Scheduling Capabilities for Achieving Enhanced Factory Performance

Scheduling Engine

Out of box area optimization-based schedulers for fab and assembly and test areas, open box solution can be customized to user specific operational scenarios and needs; Embedded MIP/CP and Constraint Programming solvers.

Prediction Engine

Out-of-box Simulation based prediction engine allows for accurate prediction of lot arrivals, easily integrate with existing dispatching rules, can be used as an additional input for enhancing dispatching logic in the areas without scheduler.

Schedule Visualization and Analysis

Web-based user interface, which can used on desktop or mobile platforms. Provides ability to change the scheduling parameters based on authorization privileges and ability to do experimentation and analysis on objective function setting. Schedule board allows users to manually adjust the schedules, providing comprehensive dashboarding and reporting capabilities.

Common Data Model

Supports common data model for all planning, dispatching, scheduling and simulation solutions. These solutions can be deployed and extended by using this common data model.

Learn more about
Applied SmartFactory



PACKAGE CONTENTS

Built on Applied's proven APF platform, SmartFactory Scheduling offers robust technology in one package, which includes:

SOFTWARE

- Scheduling EngineeredWorks
- Prediction Engine
- Activity Manager Limited (Solver and ETL blocks)
- Solution UI

The SmartFactory Scheduling solution is pre-integrated with SmartFactory Dispatching and Reporting solution and SmartFactory FullAuto solution.

SERVICES, TRAINING & SUPPORT

- Pre-configured area schedulers
- On-site deployment provided by Applied technology experts
- First-year Solution Services and technology maintenance
- User training