



Applied SmartFactory® Dispatching and Reporting

An automated decision system that improves factory productivity and reduces variability by executing advanced rule-based, real-time dispatching and reporting strategies

INDUSTRIES

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

FEATURES

- Balancing of competing objectives (cycle time and throughput)
- Incorporation of WIP management BKM's from industry
- Combination and integration of multiple data sources in real time
- Rule execution in < 1 second based on current state of factory
- Reaction to factory events in real time
- KPI reporting and dashboards

BENEFITS

- Provides real-time response to production plan updates
- Reduces setup time
- Increases profitability
- Enhances customer satisfaction by meeting "delivery-to-promise" dates
- Improves productivity by lowering cycle time and reducing variability

CHALLENGES

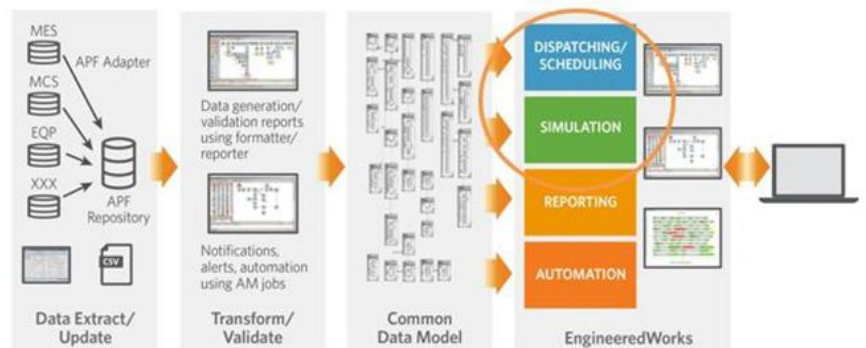
Semiconductor and OSAT manufacturers today are striving to optimize production and implementation. Some of the key challenges these manufacturers face include:

- Managing cycle time for ramping new products quickly and meeting existing customer commits
- Maximizing bottleneck tool utilization
- Reacting to events in real time to minimize white space on tools
- Managing shortages of industrial engineering experts and development resources
- Handling delays in deployment, resulting in long payback times

SOLUTION DESCRIPTION

Dispatching rules direct 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 dispatching rules is the ability to increase bottleneck throughput by better grouping lots of the same characteristics while meeting due date commitments. Rules are customized for a given factory, contain multiple criteria and reference the dynamic state of any entity in a fab. 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

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 Dispatching & Reporting with EngineeredWorks, customers can cut deployment times by more than **50%** compared to custom deployments.

Dispatching and Reporting Capabilities for Achieving Enhanced Factory Performance

✓	Rules-based dispatching	Provides the ability to enhance product workflow in areas with constrained manufacturing resources while ensuring adherence to factory global objectives. Rules are customized for a fab, containing multiple criteria and reference the dynamic state of any entity in a fab.
✓	Real-time reporting	Offers real-time and historical analysis and reporting; provides standard text-based and graphical reports as well as the ability to output in multiple formats (HTML, PDF, XLS, XML and so forth). Reports are automatically executed and distributed based on event and time-based functionality.
✓	Data integration and storage	Integrates with shop floor production, material control and quality applications. Collects data from multiple sources using extraction technology that intercepts filters and copies relevant information to a high-speed, temporal repository. This temporal repository provides quick access to historical data for analysis as well as protection against production problems.
✓	Common Data Model	Provides a 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.

**\$600K-1M
PER FACTORY**

CUSTOMER RESULTS

Dispatching customers optimize dispatch decisions and improve asset utilization, which drive greater returns on investment and profitability. Fab performance increases, reported publicly by customers using the core technology of our dispatching solution, include:

- **10%–15%** confirmed increase in wafer output per day
- **50%** reduction in cycle time and cycle time variability
- **\$5 million** cost reduction realized in line WIP balancing
- **10%** increase in tool utilization

PACKAGE CONTENTS

Designed around best known methods for improving bottleneck capacity and cycle time, the SmartFactory Dispatching and Reporting solution offers proven technology in one package, which includes:

SOFTWARE

- Dispatching and Reporting EngineeredWorks
- Real Time Dispatcher (RTD) module
- APF Reporter
- Automation module for automated reporting
- MES Adapter

SERVICES, TRAINING AND SUPPORT

- Pre-configured rules for standard global and area specific local rules
- Dispatch compliance monitoring and reporting
- On-site deployment, provided by an experienced Applied team
- First year Solution Services and technology maintenance
- User training