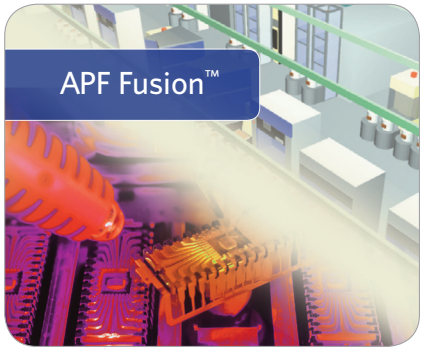
APPLIED APF FUSION™

RULE INTEGRATION SYSTEM

A dispatching and capacity analysis solution that uses APF RTD® rules directly within an AutoSched® AP simulation model without any modifications, resulting in efficient and improved operational decision making.



Industries

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

Features

- Ability to test and validate the impact of dispatching rules without impacting production
- Ability to maintain the same dispatching rule for both production and simulation model environments
- Easy integration of RTD rules within AutoSched AP models
- No C++ programming skills required

Benefits

- Validates fab rules without production impact
- Enables efficient response to down events
- Enables rapid rule deployment into manufacturing
- Provides better planning precision by improving accuracy of simulation models
- Lowers cost to users by providing a no-code formatter for easily implementing dispatching rules

Challenges

Accurately modeling dispatching rules and policies is a difficult and costly exercise. Currently, the most accurate way to qualify the impact and effectiveness of policy change is to analyze the policy in either a test facility or in production. In a test environment, difficulty increases when recreating the production environment. Likewise, testing policy changes in production can be risky and costly.

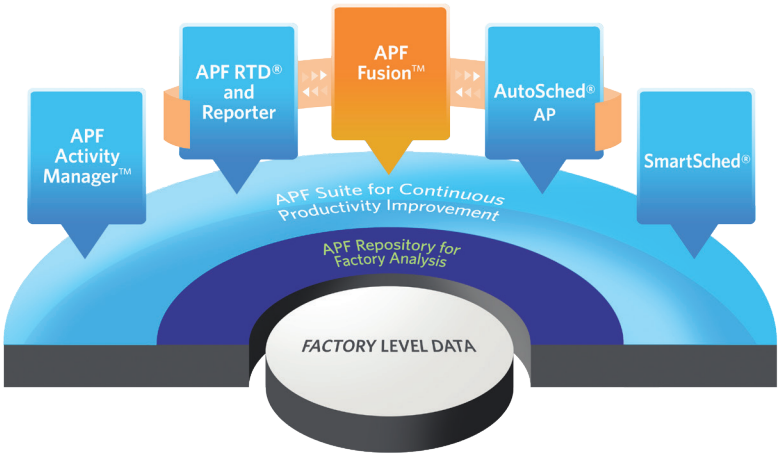
From a modeling perspective, duplicating dispatching rules for use in simulation models is time consuming because engineers must recreate dispatching policies as well as the current state of the manufacturing environment.

Solution Description

APF Fusion is a integrated dispatching and simulation solution that integrates APF RTD rules within AutoSched AP simulation models. It enables users to quantify the impact of rule changes prior to implementation in production and improves the accuracy of simulation models for short term capacity planning.

BETTER DECISIONS. APF Fusion not only eliminates duplicate rules managed between APF RTD and AutoSched AP, but also helps fab directors and planning managers validate dispatching algorithms, making simulation models more accurate for better CAPEX decisions. It is the only dispatching and capacity analysis solution that connects APF RTD rules directly within an AutoSched AP simulation model without any modifications.

GREATER LEVERAGE. A major advantage of APF Fusion is that it leverages the Advanced Productivity Family (APF) platform suite, which provides tools for implementing continuous productivity improvements in semiconductor and display manufacturing. The APF platform offers integrated and shared data modeling capabilities across factory point solutions. MES, EES and MCS data is available throughout the APF platform.



In the APF platform suite, the role of APF Fusion is to integrate rule dispatching with simulation to improve factory productivity.

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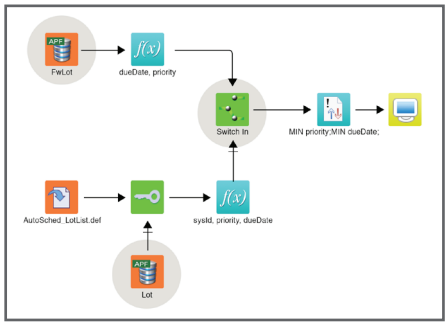
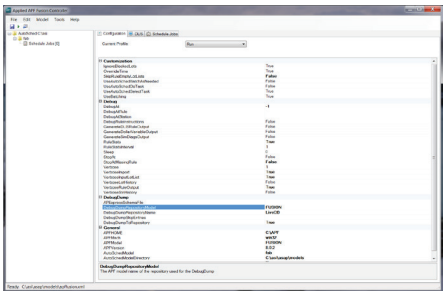
By automating the effort required to integrate RTD rules, how much time can be saved in your facility?

6 MONTHS

Total reduction of rule integration time reported by one semi customer who implemented APF Fusion, representing a savings of $100,000.



The Switch Block, along with repository support within the APF Formatter, enables you to use the same dispatching rule for both the production and simulation model. This provides faster testing and validation cycles.



From the Fusion Controller, engineers can easily manage model run and debug settings.

Customer Results

APF Fusion solves today's manufacturing challenges by providing an integration framework for dispatching and simulation. Expected productivity improvements include reducing:

> White space or cycle time by faster implementation of correct dispatching rules
> Labor and effort to execute rule validations
> RTD rule development time
> Downtime due to incorrect dispatching rules

APF Fusion Capabilities for Improved Factory Productivity

Current Challenges	APF Fusion Solution	APF Fusion Value
Manufacturing Capacity > WIP starts > Bottleneck management > Unused capacity > Rule changes	**Integrate Shop Floor Rules into Simulation**	> Reduces margin of error for: ▪ WIP starts ▪ Capacity planning > Provides positive impact on throughput and CAPEX spending
Planning Accuracy > Accurate results > Optimal test environment	**Provide What-if Test Environment for RTD Rule Changes**	Reduces risk of inaccurate rule changes
Porting Rules > Time consuming > Expensive	**Provide Continuous Rule Change Updates**	Reduces costs of current rule porting method

Package Contents

The APF Fusion solution includes:

SOFTWARE

> APF Fusion Engine
> APF Fusion Client
> AutoSched AP (version 10.0.3 or greater)

Note: *APF Fusion requires APF RTD (version 8.0.3 or greater). APF RTD maintenance customers are eligible to receive APF version 8.0.3 at no additional charge.*

SERVICES, TRAINING AND SUPPORT

> One year software maintenance for Fusion
> User training for Fusion
> Optional on-site deployment services
  ▪ RTD rule development and integration
  ▪ AutoSched AP model development
  ▪ RTD and AutoSched AP training

APPLIED MATERIALS EXPERTISE. With a deep knowledge base and a rich history of providing products and solutions specifically addressed to the semiconductor and display industries, Applied Materials experts provide services to deliver turnkey solutions for enhancing manufacturing value in a timely manner. These solutions are backed by strong development and support teams who are available to ensure continuous product growth, providing customers with low cost of ownership.

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