

## **Interface A Enabled Applications: Uses of Detailed Equipment/Process Data**

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For the past few years, ISMI and its member companies have invested a great deal of time and effort in a variety of multi-year initiatives related to the representation, collection, and usage of detailed equipment and process data to address the industry's goals for continuous improvement of cost and cycle time. Specifically, the program has executed projects in advanced equipment modeling and data collection, data quality, time synchronization, recipe and parameter management, virtual metrology, enhanced equipment quality assurance, predictive and preventive maintenance, and waste/wait time reduction. While focusing on different manufacturing priorities and application areas, these projects have a significant common thread: they all deal with raw equipment data, and in most cases, lots of it.

Viewed separately, these applications could place redundant, inconsistent, or even conflicting requirements on the suppliers of semiconductor manufacturing equipment and control systems, and further complicate the development of related industry standards. However, when taken together, a more holistic perspective emerges for the requirements of these applications and other as yet undefined data consumers in a future factory environment. The objective of this presentation is to show how specific features of Interface A can be used to support a number of these mission-critical applications, and in particular, the important role that equipment data modeling plays in this approach.

Finally, although the above may seem to have an "IT feel," the presentation is directed at manufacturing customers of equipment and factory control systems, not their developers, and will feature use cases specific to a variety of production operations that depend on reliable communication of detailed event and process data. Examples will include those shown in Figures 1-3 below, among others.

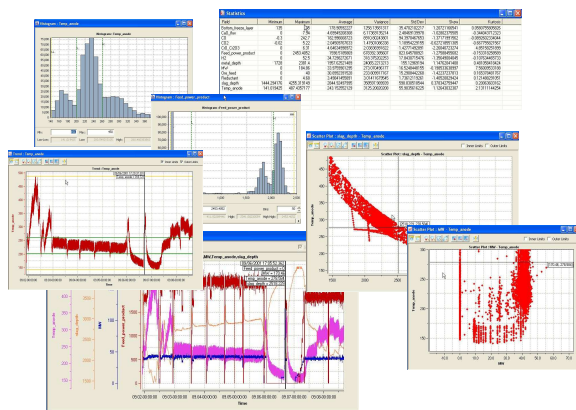


Figure 1 – Process Characterization and Control Model Development

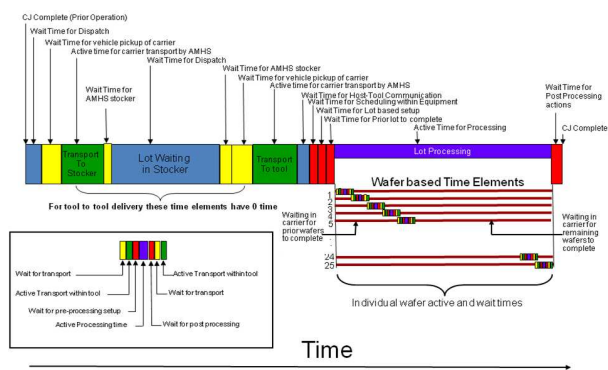


Figure 2 –Detailed Cycle-Time / Productivity Analysis

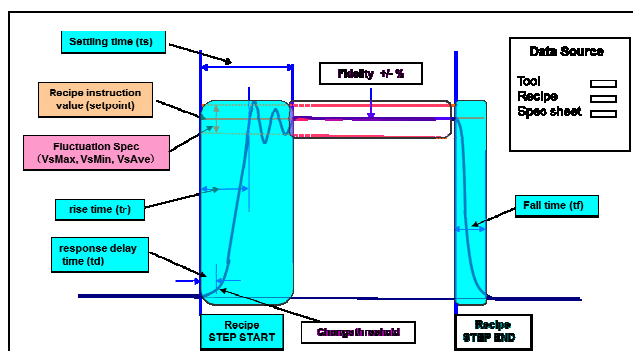


Figure 3 – Process Fingerprinting