

Opportunities and Approaches for Using EDA to Improve Fab Productivity and Product Performance

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These are exciting times for customers and developers of semiconductor manufacturing systems. Why? Because a global community of dedicated system engineers at ISMI, its member companies and suppliers, and other SEMI Standards volunteers and support staff have been very busy creating a comprehensive family of standards (“Interface A”, EDA/DDA, E134, *et al.*) for accessing and using potentially massive amounts of detailed tool/process data. And the industry adoption process is well underway.

Thanks to this initiative, the emphasis is now shifting from “How in the world can we get better real-time data about tool and process behavior?” to “How can we use this information to improve the effectiveness of our production operations and the quality of the products we manufacture?”

This presentation addresses both of these questions.

First of all, since the overall control system of a wafer fab includes software at various levels and from many different suppliers (including the company’s internal IT team), the introduction of any major new system technology creates a “chicken and egg” situation on a grand scale. Adoption of the EDA/DDA standards is no exception. The presentation discusses approaches that end users can follow now to realize much of the benefit in their fabs, even as the equipment suppliers are in the process of implementing the technology in their tools.

Secondly, the presentation discusses the impact that the availability of real-time tool/process data will have on the current generation of APC-related applications (Tool/Process Characterization, Fault Detection and Classification, Run-to-Run Control, etc.) as well as other innovative uses for this information. The latter will largely be based on the results of an end user EDA applications workshop that will be conducted as part of this year’s AEC/APC Symposium in September 2005 – this workshop is being organized by Alan Weber & Associates, and will also be facilitated by thought leaders from Infineon and AMD. Expected results include insights into the kind of fab-level control system architectures and applications we can expect in the future, and the new capabilities and agility fab customers will enjoy as a result.