

Overview:

With the siloed nature of today's technology infrastructure, there's a communication gap between R&D, their product and manufacturing process intellectual property (IP), and contract manufacturers' execution and test systems. E2open's Design for Manufacturing (DFM) bridges this communication gap between design and manufacturing specifically for the complex, process-based semiconductor industry. The solution manages master data for design, manufacturing, and testing in a central, collaborative repository and transmits it seamlessly to outsourced manufacturing partners.

The Problem: Manual Communication

Transferring the "what" (i.e., design specifications) and the "how" (i.e., manufacturing and test instructions) from the brand owner to contract manufacturers is currently managed manually, through a combination of spreadsheets, PDF files, and email communication. This communication gap creates a host of challenges for a business, such as information latency, manual rekeying, instruction/version errors, and engineering change order (ECO) confusion. This in turn leads to product delays, waste due to incorrect manufacturing, lost productivity, and endless frustration for all involved. What if you could bridge the creation and communication of information between the brand owner's product engineers and the contract manufacturer's industrial engineers? What if time and complexity could be cut down? How much faster could you get a new product to market? E2open's DFM enables companies to communicate seamlessly, thereby reducing information latency, errors, and frustration.

The Solution: Bridging the Gap

E2open's DFM offers a more intuitive way to manage complicated, many-to-many relationships that are prevalent in complex manufacturing and provides a more efficient way to parametrically automate what would typically be represented in a structured bill of materials (BOM). Companies reduce new product introduction (NPI) time by up to 25 percent with E2open's DFM by improving collaboration and communication between product engineers and outsourced manufacturing partners. These time savings are a result of the removal of delays associated with manual information exchanges of instructions to get a new product

into production. Cloud-based technology unites the extended supply chain of outsourced partners, creating an exchange of detailed cost, material, manufacturing, and testing data with existing ERP, PLM, and MES systems of record. In addition, the solution offers full version control and traceability.

Semiconductor Differentiation

With E2open's DFM teams can share the definition of how a chip should be manufactured, assembled, and tested, as opposed to designing the chip circuitry specifications themselves. The solution manages manufacturing process

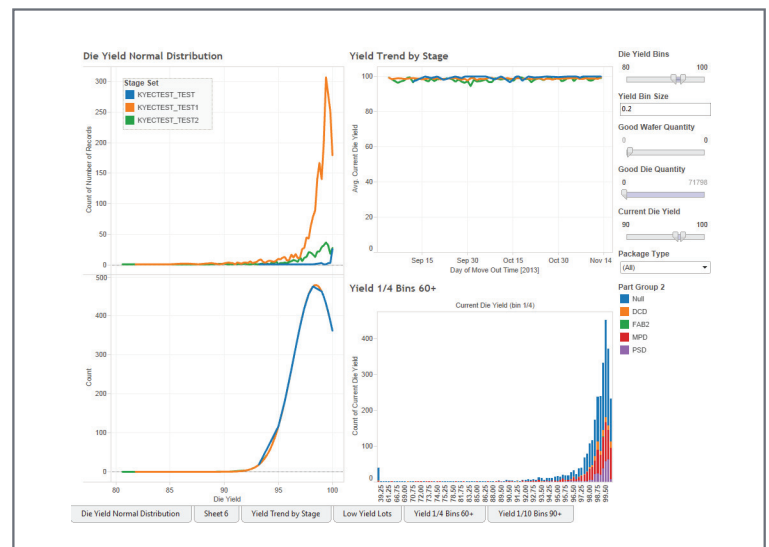


Figure 1: Intelligent metrics such as yield analysis for semiconductors

master data, including specifications and recipes, across multiple teams to ensure quality semiconductor production. This application enables easy semiconductor chip specification management for the following:

- Wafer fabrication
- Bump & chip probe (wafer sort)
- Assembly
- Test and configuration
- Mark and pack
- Fulfillment

Orchestrating Performance With Recipe Reuse

E2open's DFM is built on a network model, which reduces the amount of time it takes teams to describe and share manufacturing processes. It also enables the reuse of manufacturing

Key Features:

- Integrated modeling of PLM and physical supply chains
- Recipe creation and reuse
- Tracking and validation of changes to all components and parameters
- Tracking of material, equipment, and component usage on the shop floor
- Automated specification validation of parameters before release to suppliers
- Automated validation of shop floor actuals compared to specifications

Key Benefits:

- Fully automated workflow and collaboration process
- 25 percent reduction in NPI cycle time
- 40 percent increase in product engineering productivity
- 100 percent improvement in manufacturing communication errors
- Validate build and test results to specifications, improving build quality and eliminating manufacturing errors
- Fully automated workflow and collaboration processes

IP across similar products and manufacturing processes. E2open provides a context-based parametric recipe system to enable the efficient management of recipes that are similar but have subtle differences dependent on combinations of location, product, process, step, equipment, accessories, and more. Because many processes are similar, reusing common parameters and data is key to saving time and managing high-velocity NPI cycles. E2open's "recipe management" allows users to send manufacturing specifications to contract manufacturers parametrically. This reduces the chance of errors by eliminating the manual process of converting build instructions for different suppliers every time. The solution improves quality and on-time delivery, and provides real-time deviation alerts from the manufacturing plan.

Defining How to Execute Each Step: Process Modeling

Process modeling is used to describe the steps that define manufacturing, testing, configuration, and packaging processes. E2open's DFM provides semiconductor modeling of time-phased yields, binning, cycle times, capacity, and other user-defined, time-phased predicted and historical values. Component revisions can include time-phased numeric values to allow synchronization of master data component revisions with predicted time-phased values, such as predicted yields, bin fractions, and D0 values. These parameters are then sent through the internal workflow for vetting and approval. The E2open DFM solution supports the dynamic creation of these workflows by users, allowing infinite combinations of new products and components to be introduced with formal reviews and approvals that are fully tracked in the system before being released to the supplier for manufacturing. This drastically reduces potential design and manufacturing errors that would have occurred without an organized review and approval process in this ever-changing marketplace, streamlining operations and improving outcomes.

Supplier Master Data Synchronization

By pumping the standardized information from the cloud-based centralized location to all factory locations and integrating with the MES systems at the factories, E2open's DFM synchronizes factories around the world to ensure they all have the same information. It acts as a multisite collaboration solution to create, approve, and broadcast ECOs/MCOs to partners. This improves quality and reduces the cost to manage product data and IP. It also reduces suppliers' manual interpretation time required to understand how to manufacture products. Through the compliance validation feature, the information loop is then closed by reporting on compliance. Compliance validation collects information from test results to ensure products are being built properly and in accordance with the brand owner's specifications. Analytics provided by E2open's cloud-based platform show metrics and trends associated with ECOs and MCOs across the supply chain, critical path analysis, and predictive analytics. Having actual component, equipment, and BOM usage offers complete visibility. In today's modern supply chains, visibility and information sharing are essential to surpassing revenue goals, service levels, and product quality standards.

About E2open

E2open (NASDAQ: EOPN) is the leading provider of cloud-based, on-demand software solutions enabling enterprises to procure, manufacture, sell and distribute products more efficiently through collaborative planning and execution across global trading networks. E2open customers include Avnet, Celestica, Cisco, HP, IBM, Lenovo, L'Oréal, LSI, Motorola Solutions, Seagate, and Vodafone. E2open is headquartered in Foster City, California, with operations worldwide. For more information, visit www.e2open.com.

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