

Figure 1: The complete data set can then be used to drive manufacturing from assembly, test and inspection to collaborative viewing and assembly documentation.

#### Major product benefits:

- Reduce time to market by correcting inconsistencies in the source data
- Eliminate redundancy by consolidating multiple data preparation stages
- Complete data preparation for manufacturing
- Resolve data issues yourself and keep data moving quickly to manufacturing
- Ensure consistency with identical data used across the line

## Introduction

Without a doubt, CAD data is the single most comprehensive product data available. However, it often lacks critical manufacturing intelligence and completeness. Additionally, the transfer of CAD data into manufacturing is a fragmented, cumbersome, error-prone, laborious process.

Current methods accomplish CAD data transfer through sheer brute-force rather than repeatable, error-free business processes. This leads to wasted, duplicated efforts where individual process teams are manipulating the same data; often each team correcting the same problems. This lack of process consistency yields unpredictable results and injects errors into the manufacturing process. The root cause of these problems has been the lack of a solution capable of supporting all manufacturing processes.

CAMCAD Data Suite solves these problems. It provides an optimized framework that creates a complete PCB manufacturing focused representation of the product coupled with repeatable business processes. CAMCAD Data Suite, an integral part of the CAMCAD Manufacturing flow, supports all major EDA formats from a single environment. Manufacturers are now able to support all of their processes while eliminating duplicate efforts, providing consistent results and removing data defects from entering manufacturing.

CAMCAD Data Suite is the cornerstone of a robust manufacturing product data management solution. It is the environment that imports and merges all relevant CAD, BOM, schematic, Gerber, etc data. It allows users to tie all these disparate product design data sources together to create a single, compressed data file representing all the critical manufacturing information. Once imported the merged data is corrected for use in manufacturing. In addition to importing and correcting the product design data, it augments that data with essential information such as panelization, centroid markers, stencil layers and other unique intelligence which is critical to manufacturing.

## Importing

Automatic recognition of specific CAD file formats simplifies the task of importing the source data. Supports all major CAD and manufacturing formats that are in use today. A simple and easy to use interface allows a repeatable process for importing all types of design data. Schematic data can be imported and intelligently cross-linked to the layout features to assist with program debug and repair operations.

## Correcting

CAD systems use standard features to describe a multitude of board elements that need to be more clearly specified for manufacturing. For example, a test point is often described as a single pin component in the design. This creates downstream problems where the true component list is larger than reality. Correcting fiducials, tooling holes and test points to reflect these features results in an accurate component count. These issues impact all assembly, test and inspection stages of the production line and would need to be corrected multiple times by each process team.

## Augmenting

A critical step for manufacturing readiness is the combination of the design data with the BOM file. CAMCAD's BOM Explorer provides all the required functionality to seamlessly augment this information with the design data.

## Reporting

Once the CAD data has been corrected, accurate reports on board complexity and content can be created. Also any of the CAMCAD native exporters can take advantage of this robust data set to present that information to downstream processes.

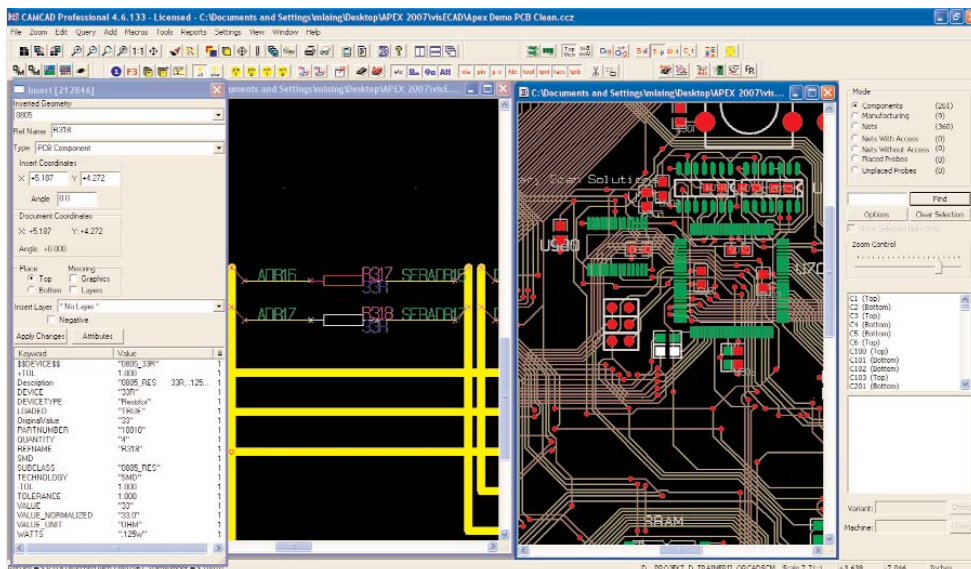


Figure 2: Nearly every manufacturing process requires supplemental data not normally encountered in the typical CAD data file. This missing information is commonly found in either the Bill of Materials (BOM) file or the corporate database systems. CAMCAD Data Suite allows for the incremental addition of external data to create a comprehensive and complete data set.

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