

# OrCAD DFM Checker

## Comprehensive and powerful DFM verification

OrCAD® DFM Checker identifies manufacturing issues often discovered by manufacturers prior to production that can result in costly time-to-market delays as designs need to be updated and reprocessed to address the issues. While manufacturers are fully capable of addressing minor issues, their resolutions are rarely fed back into the source CAD data, resulting in the same set of iterations of modifications on future design revisions. In worst-case scenarios, critical design intent may unknowingly be compromised when the manufacturer alters the source design files prior to fabrication.

### Overview

OrCAD DFM Checker is a powerful, yet easy to use, manufacturing analysis product. It is designed for engineers and designers who appreciate the benefits of manufacturing analysis and want to conduct it in a robust environment with ease and sensibility at all phases of the PCB design process. OrCAD DFM Checker offers comprehensive analysis to ensure the content supplied to the manufacturer will minimize costly delays.

PCB designs that pass standard design rule verification within the PCB CAD system can unknowingly contain critical issues that derail an expedient transition to manufacturing and assembly. OrCAD DFM Checker identifies these design issues with the potential to result in low manufacturing and assembly yields or costly scrap, including insufficient spacing between design objects (pads, tracks, copper, drills, and vias), insufficient annular rings, acid traps, solder bridge potentials, isolated or starved thermal reliefs, and trace antennas, insufficient mask spacing, missing paste, missing solder mask, extra mask areas, and overlapping, coincidental, or redundant drills, mill path errors.

### Highlights

- Comprehensive DFM analysis helps identify design issues with the potential to result in low manufacturing/assembly yields or costly scrap
- Checks are organized into layer types and sub-categories to simplify the selection of analysis to be performed
- Checking routines can be created and stored for re-use on other designs, saving duplication effort
- Addressing DFF/DFM issues helps reduce the amount of modification a fabricator makes to your design

### Key Design Features

#### Hierarchical Rule-Set-Driven Analysis

The myriad of DFM checks and the overall analysis process can be easily managed by creating rules sets. Checks are organized into layer types and sub-categories to simplify the selection of checks to perform and the setting of corresponding parameters. Define the type and order of a group of checks (rule set) to be performed. Analysis can include netlist or layer comparison, design rule verification, fabrication, and assembly checks on the entire design, a specific layer. Analysis rule sets dramatically reduce set up and execution of the analysis and can be saved and recalled for use on any design. Rule sets can be defined for a specific PCB technology, vendor capability, or unique design requirement.

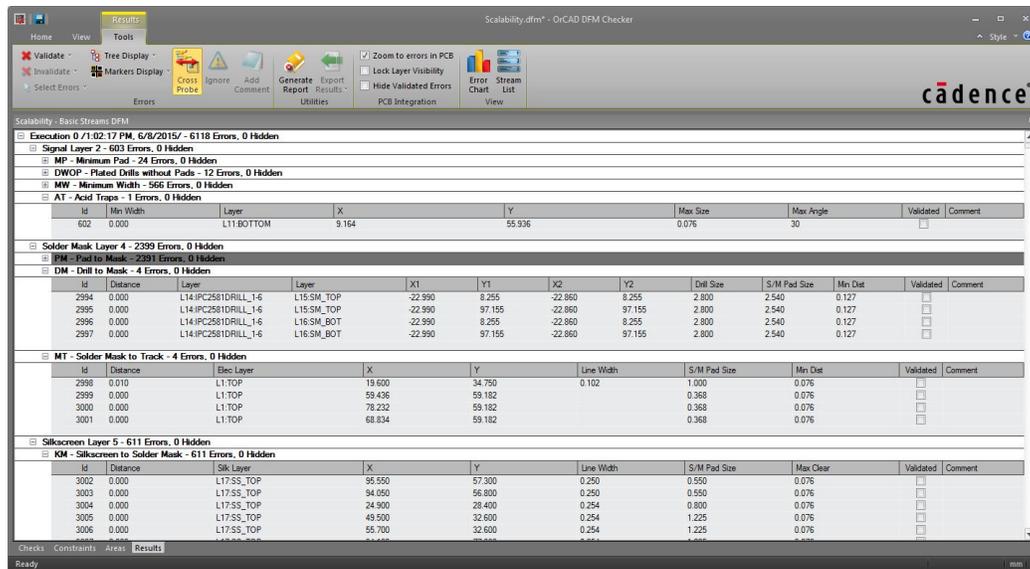


Figure 1: Use OrCAD DFM's charting feature to identify design issues with the potential to result in low manufacturing and assembly yields or costly scrap.

For many designs, different layers of a PCB have unique constraints and subsequently require custom analysis. Use unique rule hierarchy to tailor an analysis to bare-board construction, board density, or component technology.

### PCB Fabrication Analysis

Fabrication analysis will detect specific design content that may have an adverse effect on PCB fabrication. Features such as less-than-minimal spacing, acid traps, minimal annular rings, minimum features sizes, and copper and mask slivers are just a few examples of the fabrication analysis available. Drill-related analysis includes minimal distances between drills, pads without drills, mill path errors, coincident or overlapping drills, and others.

### PCB Assembly Analysis

Assembly analysis will detect specific PCB content that may have an adverse effect on PCB assembly. Solder and paste mask features—such as less-than-minimal mask spacing, missing masks, extra mask, and minimal mask annular rings—are examples of mask analysis available. Silkscreen-related analysis includes ink over pads, ink over mask exposures, and other checks.

### Error Charting

Large-scale analysis can often result in a large number of reported failures. Viewing the results of large-scale analysis in chart form allows you to get to the root of the failure and quickly ascertain a remedy. Charting allows you to review specifics of the failures to identify trends or unexpected results. OrCAD DFM Checker's charting feature (Figure 1) reports the exact nature of the error and the PCB features related to that error. The charting function groups common errors so they can be quickly identified and resolved.

### Cross-Probing with OrCAD PCB Editor

OrCAD DFM Checker is tightly integrated with OrCAD PCB Editor, allowing designers to walk through errors. Selecting errors within OrCAD DFM Checker and zooming into the error location within OrCAD PCB Editor expedites the process of finding and correcting errors in the source PCB design.

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