

Reverse Engineering Services

Problem

Many high technology companies have substantial investments in legacy printed circuit board (PCB) layouts that were created with old or obsolete Computer Aided Design (CAD) systems. Many of these layouts are still being used to either maintain current products or as replacement parts for older products. These designs often require modifications that are difficult to perform, since access to the obsolete CAD system may not be possible. This may render the legacy database useless.

In some cases, modifications may be attempted to the PCB artwork files or Gerber files. These files, generated from the original PCB CAD database, reflect the PCB topology but are broken down into unintelligent graphics to facilitate the fabrication of the bare PCB. Gerber data is risky in that it is unintelligent and prohibits the user from seeing the effects that the modifications have on the overall design.

Current PCB CAD systems typically don't support Gerber import, leaving the only option to redesign the original PCB. A PCB redesign can be costly and time consuming, and requires a comprehensive retesting of the original PCB. This must be done to ensure that the redesign meets the same criteria as the original design. In today's market, maintenance of legacy design data can be a barrier to companies meeting the needs of their customers.

Solution

An alternative solution to PCB redesign or Gerber modification is to "Reverse Engineer" the Gerber files into an intelligent format that can be read by today's PCB CAD systems. The Reverse Engineering process takes PCB artwork Gerber layers created in older CAD systems and converts them into an intelligent database. The user can then import this electronic and intelligent database into their current CAD system, allowing them to make changes intelligently at the design level instead of at the Gerber level.

The conversion process takes the unintelligent Gerber graphics and allows the user to define component locations and interconnect list associated to the design. This process maintains the topology from the original design so that the changes to the database not matching the original design are minimal. The database then contains not only the graphical information from the Gerber files, but also the intelligence of the original design, ensuring a match between the original PCB layout and the Reversed Engineered PCB layout.

DownStream Technologies offers Reverse Engineering Services for customers who do not want to purchase Reverse Engineering software. The final deliverable will be the CAD Database of your choice. CAM350 currently supports outputs in PowerPCB, Altium/PCAD2000, Visula/Cadif 4, GENCAD, and ODB++.

Required Data

- Gerber files including Silkscreen information
- Drill files
- BOM if available
- Board if available
- CAD Netlist if available, IPC-d-356 is ideal

If you are interested in purchasing this feature to perform this function yourself, DownStream offers a Reverse Engineering Bundle. To inquire about pricing and exact requirements, please contact us today.