

SHERLOCK OVERVIEW

Sherlock Automated Design Analysis™ software revolutionized electronics design and reliability by empowering designers to simulate real-world conditions and accurately model PCBs and assemblies to predict product failure early in the design process.

As the only tool that uses a Reliability Physics approach, Sherlock continues to innovate and offer enhancements that allow users to manage complex analyses on circuit boards, components, and systems that are required more and more in today's electronics products. With Sherlock you will:



Make better design decisions in less time



Take the guesswork out of your 'what if' analyses



Save development and validation time



Identify potential failures more efficiently and effectively

STANDARD SHERLOCK MODEL FEATURES INCLUDE:

SOLDER FATIGUE ANALYSIS	Predicts solder fatigue reliability under thermo-mechanical and mechanical environments for all electronic parts (die attach, BGA, QFN, TSOP, chip resistor, through hole, etc.).
THERMAL-MECHANICAL ANALYSIS	Incorporates the effect of system-level mechanical elements (chassis, module, housing, connectors, etc.) on Solder Fatigue Analysis.
SHOCK AND VIBRATION ANALYSIS	Predicts the natural frequency, displacement, strain, and reliability under shock and vibration over a range of temperatures (-55C to 125C).
PLATED THROUGH HOLE (PTH) FATIGUE	Predicts fatigue of plated through holes/vias in circuit boards using IPC TR-579 calculations.
CONDUCTIVE ANODIC FILAMENT (CAF)	Sherlock benchmarks the printed board design and quality processes to industry best practices to identify risk of CAF failures.
PCB/BGA SUBSTRATE STACKUP	Captures stackup from output files (Gerber, ODB++, IPC-2581). Automatically calculates weight, density, and in-plane and out-of-plane modulus, coefficient of thermal expansion, and thermal conductivity.

LIBRARIES – EMBEDDED DATABASES EASILY EXPANDED BY USERS.



ADVANCED CAPABILITIES INCLUDE:

DESIGN FOR MANUFACTURABILITY (DFM)	Determines if any post-soldering processes could induce excessive flexure that would cause component cracking, pad cratering, or solder fracture.
CONFORMAL COATING/POTTING	Allows the user to evaluate the effect of staking compounds, underfills, conformal coatings, and potting materials on the reliability of electronic hardware.
CAE INTERFACE	Import to and export from Ansys, Abaqus and/or Nastran.
THERMAL DERATING	Flags devices being used outside of the specified operation or storage temperature range.
TRACE MODELING	Allows the user to explicitly model all PCB features over the entire circuit board or in a particular region. Can be exported for current density, thermal, or structural analysis.
MTBF, EMPIRICAL HANDBOOK	Perform MTBF calculations using either MIL-HDBK-217, Telcordia SR-332, or IEC-62380.
MTBF, RELIABILITY PHYSICS	Perform MTBF calculations using Physics of Failure/Reliability Physics per ISO 26262 and SAE J3168.
CERAMIC CAPACITOR TIME TO FAILURE	Predicts time to failure for ceramic capacitors (MLCC).
ELECTROLYTIC CAPACITOR TIME TO FAILURE	Predicts time to failure for aluminum liquid electrolytic capacitors.
INTEGRATED CIRCUIT WEAROUT	Predicts failure rate and end of life of integrated circuits using degradation algorithms for electromigration, time dependent dielectric breakdown, hot carrier injection, and negative bias temperature instability.
HEATSINK EDITOR	Create pin and fin-based heatsinks using fill-in fields and drop down menus and attach them to components or PCBs.
DFMEA	Allows the user to semi-automate the creation of a component-level DFMEA. Can be exported into any form/spreadsheet, including SAE J1739.

SHERLOCK IS YOUR SOLUTION

No matter what your role is in the product development cycle –Mechanical Analysis, Design Engineering, Product Manufacturing & Testing, or Reliability Engineering, Sherlock can solve your design challenges.



Translates ECAD to CAE files



Predicts product failure



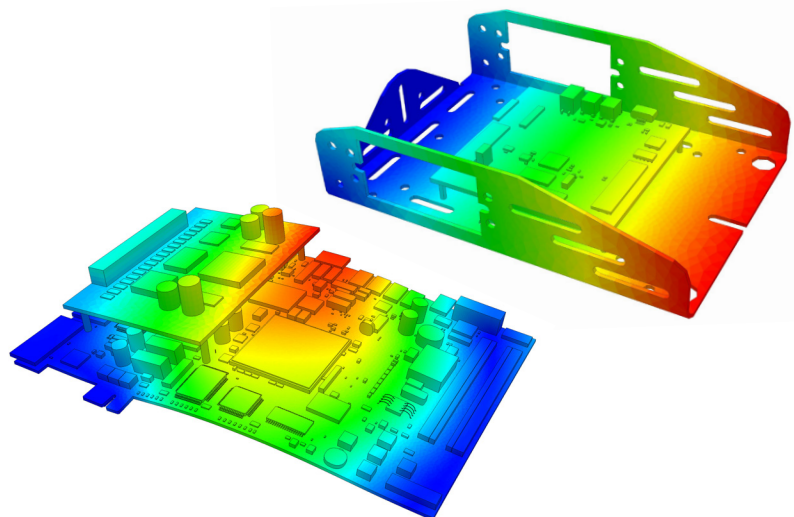
Designs for manufacturability



Optimizes the design process



Analyzes Failure Mode effects



To learn more about Sherlock, please visit <https://www.dfrsolutions.com/what-is-sherlock>

To schedule a personal demonstration, please call: 301-474-0607