aesystems

ANALYTICAL **HEAVY** LIFTING

Analysis That Takes **FLIGHT**

www.aeisystems.com

WCCA • Stress • FMECA • Signal/Power Integrity • SPICE Modeling • Testing • Radiation

Analog Engineering Solutions

When your goal is mission success

Worst Case Circuit Analysis (WCCA) is not an after-the-fact exercise but a cost-effective, integral part of the design process. When a WCCA is performed properly, the results often save millions of dollars, dramatically lessen the possibility of human injury, and avert potential disasters -- both monetary and political.

WCCA is a cost-effective means of ensuring with a high degree of confidence that potential design defects and deficiencies are identified and eliminated prior to and during test, production, and delivery. WCCA is essential to Mission Assurance.

AEi Systems' meticulous analysis helps find and eliminate design flaws before they reach production. Our years of experience in all forms of circuit analysis enable us to quickly fulfill your projects' needs and satisfy the most exacting customers.

You will be impressed with our engineering expertise, responsiveness, and competitive rates.

Analysis Services

- Worst Case Circuit Analysis (WCCA)
- Power, RF, Digital, Linear
- Reliability Analysis / MTBF
- FMECA
- Stress and Derating Analysis
- Signal/Power Integrity Analysis
- Radiation and SEE/SET Analysis

Analysis Solutions

- Electrical SDRL Packages
- TOR & NASA/LMCO/Boeing Guideline Compliant
- WCCA Plans/WCCA Review
- Design Review Support
- Component Characterization and Modeling
- Hardware Testing and Evaluation

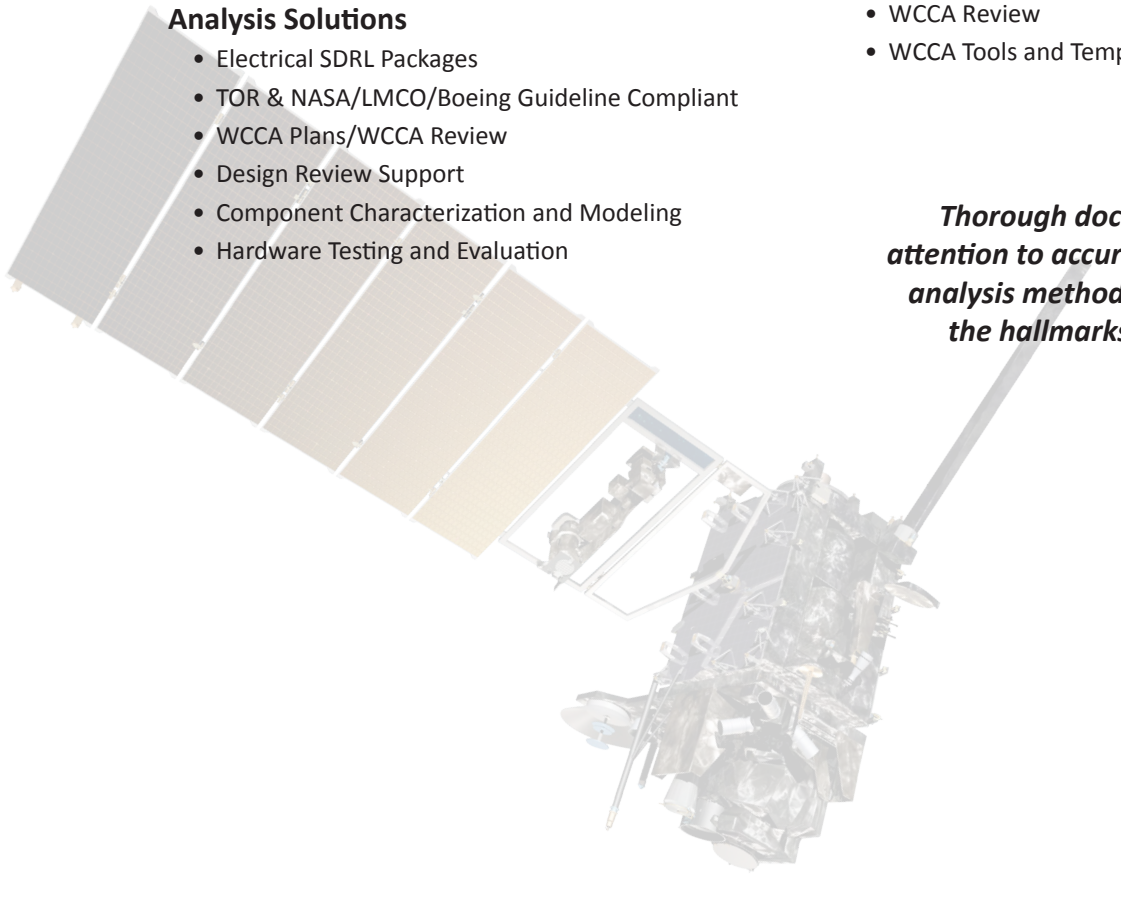
Analysis Coverage

- Power Systems and Converters
- RF Amplifiers and Oscillators
- Linear Circuit and Signal Conditioning
- FPGAs, Clocks, and Signal Processing

WCCA Training Solutions

- WCCA Training Courses
- Corporate Enabler WCCA Process Guide
- WCCA Review
- WCCA Tools and Templates Software

Thorough documentation, exhaustive attention to accuracy, and the use of multiple analysis methods to verify conclusions are the hallmarks of AEi Systems' WCCA



Analysis is What We Do

We keep your engineering projects on time and under budget
Faster, Better, and Cost-Effective

We work interactively with our customers, keeping them in the loop as the analysis proceeds and offering fixes where appropriate. This way issues are fixed in a timely fashion saving customers schedule and money.

WCCA relies on accurate SPICE models and extensive modeling experience. AEi Systems performs WCCA faster than other resources because of our pre-existing correlated SPICE libraries.

AEi Systems has proprietary relationships with key IC manufacturers. That means AEi Systems has or is able to obtain proprietary information that is not available to others. This information is critical to getting key performance assumptions correct. This is why AEi Systems is a superior resource. We are the number one source in the world for custom SPICE models.

There are times when in-house resources are just not available. That is when AEi Systems can step in and pick up the slack. We specialize in getting you back on schedule and freeing up your valuable design resources.

In your business, you can't afford to take chances. That's why the most trusted technology companies in the world rely on AEi Systems to support their most critical requirements.

Representative Clients

- AITech
- Sierra Space
- Ball Aerospace
- Boeing
- Crane / Interpoint
- Northrop Grumman
- Harris/L3
- JHUAPL
- Blue Origin
- Honeywell
- Lockheed-Martin
- Blue Canyon
- NASA/JPL
- Raytheon
- SEAKR
- Gurley
- SWRI

Projects

- Classified Programs
- GPS IIF/IIR/III
- AEHF, GOES-R
- ORION, CRIS
- Europa Clipper
- MUOS, HALO
- Space Station

"AEi Systems is an invaluable resource. The AEi Systems engineers quickly achieved expert-level knowledge of the design and operation of our high-performance space-qualified rubidium frequency standard and helped us close out all remaining component electrical stress and end-of-life circuit-stability design matters within the required deadlines."
-- J.V., Excelitas

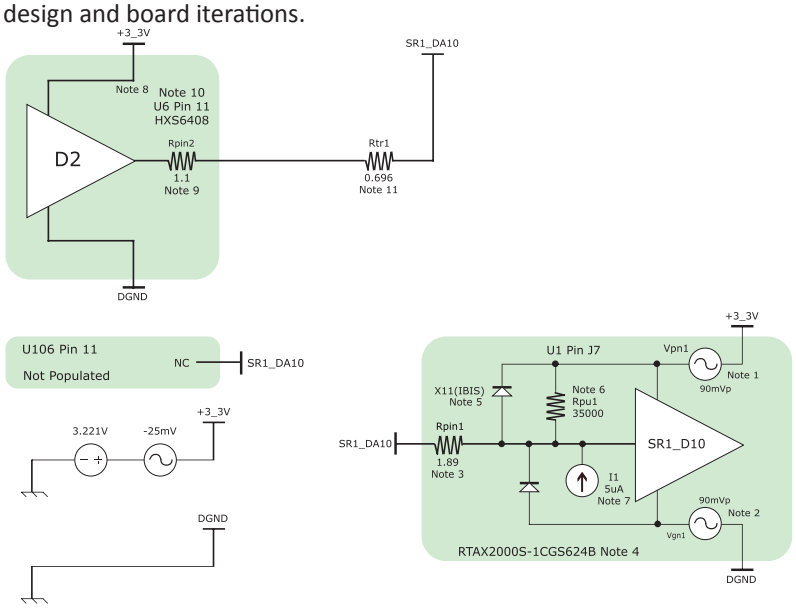
"AEi Systems enables us to save on costs by providing us with on-demand qualified professionals seasoned in circuit design and worst case analysis."
-- B.W., Lockheed-Martin

"AEi Systems' response time and experience helped put our project back on track."
-- M.M., Boeing

"AEi Systems' Design Review saved us a great deal of money and design iterations by identifying EOL issues before PDR!"
-- D.P., Boeing

Signal/Power Integrity

AEi Systems has a new, super-fast, signal integrity analysis service for all types of digital circuitry, which is especially applicable to space and high-reliability applications. Given the constant increase in edge speeds, analyzing only a few critical nets is no longer acceptable. The “BOARD CHECKOUT” package is a 100% exhaustive evaluation of your board’s interconnect performance and functional operation under worst case conditions. We make sure you meet specifications; we save you design and board iterations.



Example Interface Compatibility report diagram, showing all components taken into account. Supply and ground noise, leakage currents, clamp diodes, package pin resistances, and driver impedance.

The “BOARD CHECKOUT” package includes the following worst case analyses:

- Signal Integrity
- Crosstalk/Ground Plane Coupling
- DC Interface Compatibility
- Decoupling/SSO
- Power Sequencing
- Critical Timing Relationships (WCTA)
- Power Integrity/PDN Analysis
- Clock Jitter Analysis
- Interface Analysis

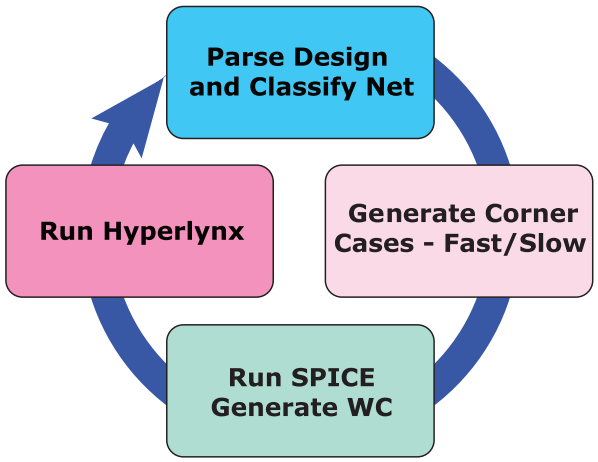
AEi Systems performs these analyses much faster and more thoroughly due to our proprietary Logic-Command™ software. For anyone other than AEi Systems, these analyses can take many man-months to perform. We perform a 100% checkout on every digital net. This results in findings that would likely not be caught during test. It also dramatically reduces your turn-around time and allows you to find, evaluate, and correct non-compliances and problem areas much earlier in the design process.

AEi Systems’ Logic-Command™ software combines Hyperlynx and SPICE to speed-up common digital analyses. This methodology is essential because:

- Digital analysis complexities are increasing
- Perceived ‘low risk’ nets and interfaces get skipped
- 100% assessments are required but are currently time consuming and cost prohibitive

AEi Systems’ Logic-Command™ software automates the analysis and finds problems you cannot find manually and that testing does not expose.

This makes our analysis faster, less expensive, and more thorough than conventional methods.



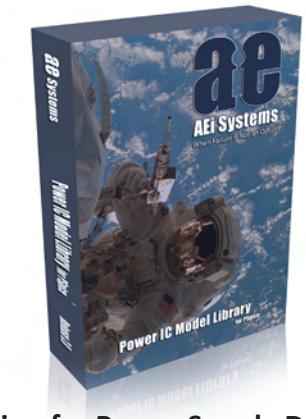
SPICE Modeling

AEi Systems develops custom models that provide the accuracy and performance you require. AEi Systems has developed hundreds of SPICE models for discrete semiconductors, RF devices, PWM ICs, magnetic cores, linear regulators, and dozens of other types of devices.

We also offer our Power IC Model Library as a cost effective way for users to take advantage of the decades of SPICE expertise and the intellectual property developed by AEi Systems' engineers.

Power IC Model Library for PSpice

"SPICE Models for the Power Electronics Designer" sm

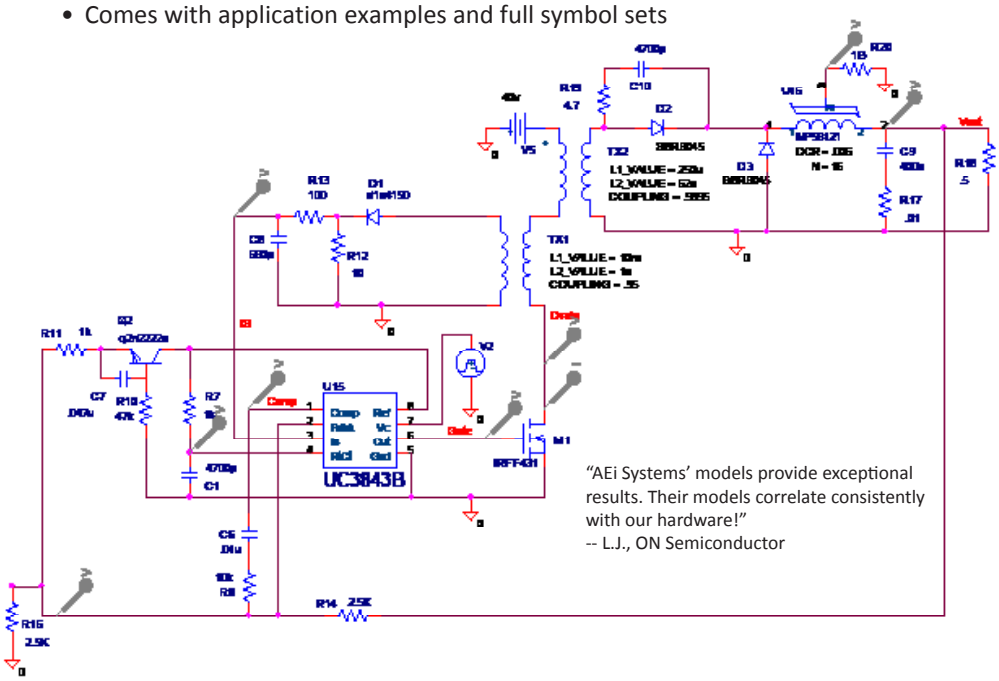


Customized SPICE Support

- PSpice, LTspice, ADS, SIMPLIS
- Component, Circuit, System Level
- Analog/Power ICs
- Discrete Semiconductors
- Power Devices
- Magnetics & Transformers
- Inductors, Capacitors
- RF Modeling; ADS and MWO
- Automotive Sources

A Powerful Solution for Power Supply Designers

- Enable Your PSpice Power Simulations
- Popular parts: UC184x, UC152x, LT124x, UC182x, TL431, IR2110, UC3854, UCC3895, UC1846
- TI, Renesas, ON Semiconductor, ADI, IR, Vishay - Automotive ISO Sources
- PWM controllers, Switching regulators, PFCs, LDOs, GaN, Magnetics, Opto-Couplers, Drivers
- Perform cycle-by-cycle simulations to show true large-signal performance
- Analyze large signal effects: start-up transients, power stage stress, step-load response
- Compute component stresses and test for excessive power dissipation
- Accurate and verified against bench data
- Comes with application examples and full symbol sets



"AEi Systems' models provide exceptional results. Their models correlate consistently with our hardware!"
-- L.J., ON Semiconductor

Recent Modeling Clients

- Texas Instruments
- Vishay/Siliconix
- Analog Devices
- Central Semiconductor
- Intersil/Renesas
- Micropac
- Microsemi
- International Rectifier
- ON Semiconductor
- SSDI
- Linear Technology
- Apogee Semiconductor

Failure Analysis & Troubleshooting

AEi Systems provides troubleshooting of power conversion and communications circuits for satellite systems and commercial or military, ground-based and airborne, analog, digital, and RF applications.

We bring our analysis, modeling, and testing skills to bear on failures and anomalies resulting in improved reliability and quality.

"AEi Systems' exceeded all of our expectations."
-- C.E., - Northrop Grumman

Power Circuits, POLs, and Regulators

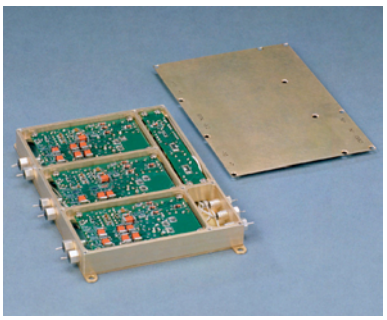
- Low-Cost and High Reliability
- 1W to 1.5kW
- Single & Multiple Output
- Mil-Std 461 / 1547
- Rad-Hard
- High Efficiency / Low Noise

Representative Clients

- Aeroflex
- Alstom
- CERN / Brookhaven National Labs
- Honeywell
- Northrop Grumman

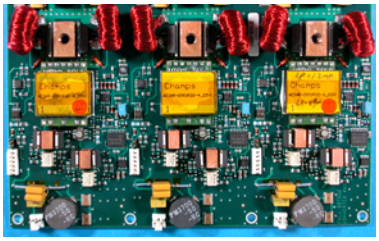
Hardware Validation

- Analog/Digital Circuits to Specification
- Complete Power Systems
- EMI Filters
- Magnetics
- RF Circuits



Power Systems for Tough Environments

- High Temperature
- Rad-Hard to High TID/Neutron Levels
- Magnetic Field Robustness
- Ultra High Reliability
- COTS Components
- High Power Levels



About AEi Systems

AEi Systems is the world's leader in worst case circuit analysis.

Since 1995, we have supported the increasing demand for WCCA in high reliability markets. We provide an array of on-time analysis services to a demanding clientele that includes nearly every significant Space, IC, and aerospace manufacturer and many of their respective subcontractors.

AEi Systems' core strengths in circuit analysis, simulation, parts variability, radiation, and SPICE modeling have enabled us focus on improving Mission Assurance while cost effectively performing this vital analysis requirement.

Our emphasis on automation, efficiency, and new analysis techniques has allowed us to fully support WCCA for advanced RF and high density digital circuits.

AEi Systems is the world's leader in SPICE modeling, supplying accurate, tested and correlated models to the top analog IC and hybrid houses. Our proprietary content, knowledge and superior modeling skills translate into faster and less costly WCCA, since new models are not required for each analysis.

At AEi Systems we BELIEVE

- That there is a correct way and a best way to do analysis
- That products should function and last as long as advertised (aka, meet spec), always
- That short-cuts and failure to perform analysis rigorously is simply negligent and unacceptable, and in the end, not cost-effective

To execute on what we BELIEVE:

- We have brought together top engineers with the focused backgrounds in reliability, design, components, modeling, testing, and analysis
- We dig deeper and work harder to get it right, because it is simply unacceptable to be complacent

Simply put:

- We do it faster, better, and at a lower cost than in-house resources
- We help customers meet their deadlines, yet we never sacrifice thoroughness
- We help fix the problems we find and help you assess risk
- We help our customers achieve high standards and GREAT results, providing LONG-TERM benefits to their product lines

ALL BECAUSE OF WHAT WE BELIEVE

ANALYTICAL **HEAVY** LIFTING

AEi Systems

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