



CEDA-Labz

Presenting Classroom Training at CEDA-Labz
Signal Integrity | Power Integrity | Thermal Analysis |
& EMC Analysis

4 different courses you can choose any individual course – complete 2 days from Morning till evening – “Less theory more HANDS-ON” to clear your doubts & Email support for another 15 days

Software used – Mentor Graphics HyperLynx & Ansys
Email at cedatraining@gmail.com

HyperLynx Signal Integrity Analysis

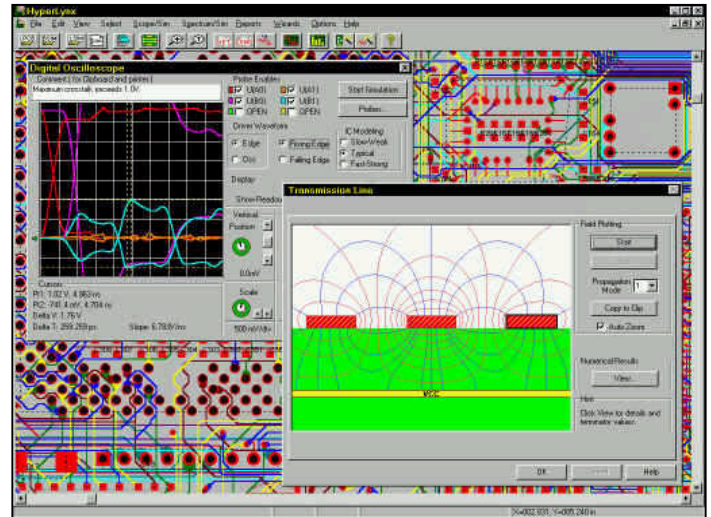
Course Overview

Day 1

1. Create and simulate a Power Distribution Network (PDN) in LineSim
2. Create and simulate LineSim free-form schematics
3. Investigate termination strategies
4. Investigate stack-up strategies
5. Translate design databases
6. Identify and debug SI and Crosstalk issues
7. Assign models and component values
8. Evaluate SI and Crosstalk issues
9. Translate PCB layout databases
10. Run BoardSim simulations interactively and in batch Mode
11. Run BoardSim for both single and multi-board projects
12. Evaluate batch mode simulation reports to identify potential problems
13. Run Sweep analysis and explore a solution space

Day2 Hands-on Labs

1. Throughout this course, extensive hands-on lab exercises provide you with practical experience using HyperLynx SI software. Hands-on lab topics include:
2. LineSim free-form schematic creation, editing stack-up, assignment of models and component values
3. Compare theoretical values with simulation results
4. Manual and automatic waveform measurements of overshoot, flight-time and crosstalk
5. Evaluating the effects of different impedance matching strategies, topologies, technologies, and stack-ups in LineSim Sweeping design parameters
6. Create and debug IBIS models
7. Add model libraries using different methods in BoardSim
8. Perform Batch Mode Quick Analysis in BoardSim and review the report
9. Perform Batch Mode Detailed Analyses in BoardSim and analyze the reports
10. Interactively simulate different scenarios to fix problems in BoardSim
11. Document changes made in BoardSim Set up and simulate nets between boards using multi-board projects



HyperLynx Power Integrity Analysis

Course Overview

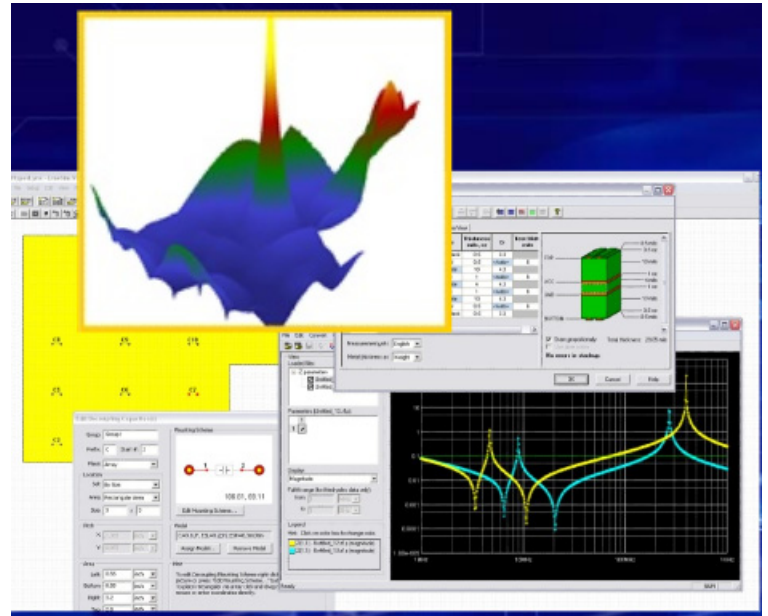
Power Integrity Analysis

Day 1

1. Create and simulate a Power Distribution Network (PDN) in LineSim
2. Set up and run DC Drop Power Analysis in LineSim and BoardSim
3. Set up and run Decoupling Analysis in LineSim and BoardSim
4. Set up and run Plane Noise Analysis in LineSim and BoardSim
5. Set up and run Power Integrity/Signal Integrity co-simulation in LineSim

Day 2

6. Extract Via and PDN models for use in various simulation environments
7. Analyze bypassing of signal vias
8. Evaluate the results of different types of analysis and identify the potential hot spots in PowerScope, TouchStone Viewer, and Digital Oscilloscope graphical tools
9. Modify the PDN to fix the potential problems
10. Explore design PDN methodologies

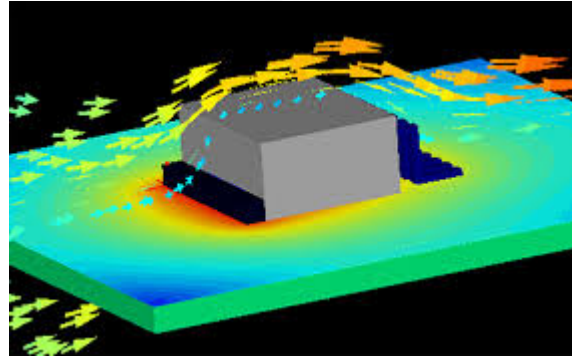
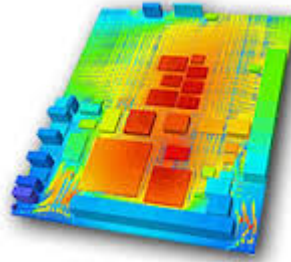


Course Overview

Thermal Analysis

Day 1

1. Part 1
 - 1.1. Introduction
 - 1.2. Modeling with FloTHERM
 - 1.3. Basic Principles
 - 1.4. Software Tour
2. Part 2
 - 2.1. Creating a FloTherm Model
 - 2.2. Overview of Modeling Process
 - 2.3. Creating Basic Geometry
 - 2.4. Introduction to the Mathematics and Solving Process
 - 2.5. First Look at Results
3. Part 3
 - 3.1. Advancing the Model
 - 3.2. Using Building Specific Smart Parts
 - 3.3. Advancing Results Presentation
 - 3.4. Alternative Results Access
4. Part 4
 - 4.1. Component Modeling and Radiation
 - 4.2. Modeling Discrete Components
 - 4.3. Including the Effects of Radiation



Day 2

5. Part 5
 - 5.1. Modeling the Environment and Advanced Grid Use
 - 5.2. Extending the Model to Include the Surrounding Air
 - 5.3. Introduction to the Grid Tools and How to Use Them
6. Part 6
 - 6.1. Introduction to Problem Solving
 - 6.2. Ways of Improving Cooling
 - 6.3. Diagnosing Solution Problems
 - 6.4. Obtaining Animated Output
7. Part 7
 - 7.1. Optimizing the Design
 - 7.2. Introduction to the Command Center
8. Part 8
 - 8.1. Alternative Input Methods
 - 8.2. Introduction to FloTHERM.PACK
 - 8.3. Introduction to FLOMCAD
9. Part 9
 - 9.1. Different Applications
 - 9.2. Discuss Modeling Different Applications
 - 9.3. Summarize Course

EMC Analysis

Course Overview

Agenda

1) Introduction to EMI/EMC

- a. EMI/EMC issues category
- b. Fundamental of Maxwell Equation
- c. EMI/EMC issues and solution
- d. Why EMC-Analysis?

2. Methodology and Techniques of EMC analysis

3. EMI/EMC analysis- Area of interest

- a. Clock
- b. Power Section
- c. High Speed Signals
- d. PCB Basics for EMC compliances

4. EMC Analysis Vs EMC Test

5. EMC standards

6. EMC Analysis

- a. PCB EM Field:
Significance of Resonance analysis over RE test.
Debugging issue and solution techniques.
- b. **Power Section**
EMC issue in Power section.
Decoupling Analysis (Power Plane Impedance Analysis)
DC Drop/ Return Path Analysis
Ground Plane and via shielding effects
- c. **Clock and Signals**
EMC Issues in Clock and signals- Crosstalk, SSN

7. Tips and techniques for EMC analysis on various Tools.

