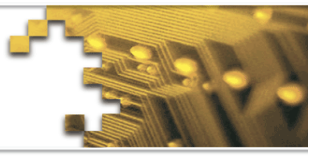
Speeding Edge

If it's current technology, it's high speed



One-Day PDS Design Class

Speeding Edge is now offering a one-day power delivery system (PDS) design class as an on-site class. Today´s high-speed designs use a variety of power delivery components and successfully designing a PDS and the PCB into which is incorporated requires a thorough understanding of the overall power delivery system. In addition to reviewing the PDS components currently available; this course examines how to meet the conflicting goals of the PDS system and how to address power plane, impedance and overall system capacitance issues.

As with the other courses offered by Speeding Edge, the PDS design class is structured to take the student through the entire PDS design process. The class begins with the goals of the PDS design process including how to arrive at a reliable design in the shortest amount of time and at the lowest cost possible with a minimal use of single-source suppliers and specialty components and materials. The course will also examine several real-world PDS designs to further illustrate the goals of the design process.

The materials and examples used in this course are drawn from actual designs of PDS systems in current manufacture. These examples range from subminiature disc drives to terabit routers and supercomputers. The design process presented is based on many years of completing designs that are "right the first time". The goal of the course is for students to take the information learned in class and start applying it immediately to their designs-to trouble-shoot existing designs or incorporate into next-generation product iterations.

- Goals of the PDS process
- Conflicting demands and goals
- What do loads look like
- Getting load I/C data
- What to do when I/C data is not available
- Characteristics of PDS components
- Characteristics of Planes-L, C, R resonances
- Getting power into and out of planes
- Combining planes and capacitors
- Deciding on PDS impedance
- Making all power rails low impedance
- Determining types and quantities of capacitors
- Designing a PCB stackup
- Where return currents flow
- How to address four-layer PCBs that have no plane capacitance
- Capacitance located on die and on package
- A design process that includes PDS design
- PDS design tools
- Simulating and testing the PDS

How This Course Differs From The Speeding Edge Two-Day High Speed PCB and System Design Course:

There is not adequate time in our two-day course to provide a complete treatment of all the topics that need to be addressed to design a stable power delivery system. Specifically, this one-day course provides:

- A complete treatment of the various capacitor choices including their flaws and benefits
- A complete treatment of the on-PCB, on-package and on-die PDS issues that are required by today's complex, high-speed ASICs
- How to determine what loads look like
- Testing of the PDS to ensure proper operation in the completed PCB

Who Should Take This Course

This course is designed for all the participants in the design process. Among those who will find it valuable are:

- Design engineers
- System architects
- EMC specialists
- Signal integrity engineers
- Technicians
- PCB layout professionals
- Applications engineers
- IC designers
- IC package designers
- Test engineers
- Project engineers
- Design managers
- Engineering managers

Prerequisites

Any engineering professional who works with high speed design will understand the materials presented. No advanced mathematics are required.

Why Take This Course

The speeds and power levels of current and future electronic products have changed to the point where techniques used in the past and commonly described in applications notes do not result in stable power delivery systems. To arrive at successful designs, engineers need to be fluent in the skills involved in designing the complete power delivery system. This one day course covers of all these skills along with many practical examples to provide a starting point for new designs.

For more information contact us at 707-568-3983 or at:

Speeding Edge
P.O. Box 2194
Glen Ellen, CA
95442

www.speedingedge.com