

# Registration Form

For a **Free** Full Day Seminar  
**On Friday, May 5<sup>th</sup>, 2000**  
Registration 8 – 8:30 AM  
Seminar: 8:30 AM– 5:00 PM

**Location:**

The Harris County Office – Texas Agricultural  
Extension Service  
#2 Abercrombie Drive, Houston, Texas 77084  
Office: (281) 855-5600  
(Hwy 6 and Patterson @ Bear Creek Park)

Please Pre-Register so we can save you: a seat, along  
with Study materials, and Certificate of Completion

**Reminder:** No Lunch will be provided.  
There will be a lunch break from 11:30 to 1pm.

Use Separate Registration for Each Attendee.

(Please Print)

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State and Zip \_\_\_\_\_

Phone No. \_\_\_\_\_

Fax No. \_\_\_\_\_

Email \_\_\_\_\_

Mail/Fax/E-mail form to:

Contact For Registration Information:

**Paul Danna**

**Phone:** (281) 518-6735

**Fax:** (281) 518-6122

**E-mail:** Paul.Danna@COMPAQ.com

**Mail:** IPC Designers Council

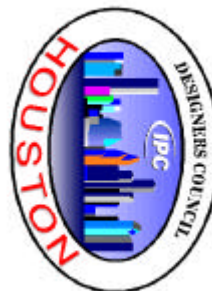
P.O. Box 691695

Houston, TX 77269-1695

Registration Confirmation will include a site map

The Houston Chapter of the IPC Designers Council, Inc is registered as a  
501(c)(3) Non Profit Corporation under the Texas Non Profit Corporation  
Act, Article 1396.02

IPC Designers Council  
P.O. Box 691695  
Houston, TX 77269-1695



## Houston Chapter of the IPC Designers Council

Is pleased to present,  
for your educational benefit:

A **Free** Seminar

### SMT Design for Manufacturing

Fine-Pitch QFP and BGA/CSP Standards,  
PCB Design and Assembly Processing

A Full Day Tutorial

By **Vern Solberg**

**Friday, May 5<sup>th</sup>, 2000**

8:00 AM to 5:00 PM

At

The Harris County Office –  
Texas Agricultural Extension Service

#2 Abercrombie Drive,

Houston, Texas 77084

Office: (281) 855-5600

In West Houston @ Bear Creek Park

### Who Should Attend:

Printed Circuit Board Designers

Printed Circuit Board Engineers

Printed Circuit Board Manufacturers

Manufacturing Engineers

Process Engineers

Quality Control Personnel

## Houston Chapter of the IPC Designers Council

Is pleased to present:



### SMT Design for Manufacturing

**Fine-Pitch QFP and BGA/CSP Standards,  
PCB Design and Assembly Processing**

By Vern Solberg

#### Topics:

- ◆ Applications Driving Package Miniaturization
- ◆ Impact of Device and IC Packaging Standards
- ◆ Industry Defined Solder Joint Requirements
- ◆ How to Plan Land Pattern Geometry
- ◆ Adapting High Density PCB Circuit Routing
- ◆ Planning for Efficient SMT Assembly Processing

#### What You Will Learn:

- ✓ Current Trends and Standards for SMT and Packaging
- ✓ IC Package Innovations and Methodology
- ✓ PCB Design and Land Pattern Development
- ✓ Circuit Board Material Selection
- ✓ Specifying PCB Surface Finish
- ✓ Alternative HDI Fabrication Technologies
- ✓ SMT Assembly Process Requirements for QFP, BGA and CSP

#### Coarse Objectives:

This course has been developed to enable the PCB designer and assembly process specialists an opportunity to successfully implement surface mount technology, fine-pitch quad flat pack ICs, high-density ball grid array and fine-pitch chip-scale device families. All of these package technologies offer improved product performance and reduced product size, but circuit routing and assembly processing have become more complex. Technology advances, the growing complexity of electronic products and reduced time to market goals continue to burden packaging and assembly specialists. Adapting these smaller and often,

higher I/O devices can be challenging. To reduce the delays that often occur during the development, the course leader will assist the designer and engineer to recognize PCB design related disciplines and limitations as well as implement proven methods that can help reduce manufacturing costs and improve assembly process yield.

#### What are the Benefits and Who Should Attend:

Companies are striving to improve time-to-market, assembly process yield and when implementing automation, achieve maximum machine utilization through all assembly processes. The most successful product development programs are those that have implemented process proven circuit board design guidelines. The design guidelines discussed in this workshop will consider component complexity, land pattern geometry, high-density circuit routing, board fabrication tolerances, industry defined requirements for solder attachment and the requirements for automated assembly machine processing. The workshop has been developed to benefit product designers, PCB design specialists, assembly process engineers and others responsible for product development, manufacturing process refinement, overall quality and product reliability.

#### About the Instructor:

Vern Solberg has more than twenty years experience in PCB design, assembly process development and high volume assembly. Mr. Solberg is a Senior Applications Engineer with Tessera in San Jose California and is an active member of IPC, IMAPS and SMTA, focusing on product "Design for Manufacturing". His primary activity with Tessera is related to application engineering and assembly process development, serving as a technical advisor to in-house as well as customer engineers and design specialists.

Current activity includes: Author of "Design Guidelines for Surface Mount Technology"

published by McGraw-Hill of New York, Chairman/Secretary for IEC-TC91/WG2, International Standards for SMT Assembly Processes, formerly Chairman for the ANSI/IPC-SM-782, SMT Design and Land Pattern Standards Task Group, Editorial Advisory Board Member for "Surface Mount Technology Magazine", a USA. based trade publications, Member of the Surface Mount Council (SMC), Member of EIA JEDEC JC-11, Committee for Device Outline Registration and Standards.

**Please Pre-Register.**

### Houston IPC Designers Council Upcoming Events

#### April

- 2-6** **IPC Printed Circuits Expo**, San Diego  
**10** **Dallas SMTA/IMAPS Expo**, Richardson Civic Center, Dallas, Tx.  
**14** **Houston Electronics Expo**, Braeswood Hotel, Houston, Tx.

#### May

- 5** **Houston IPC Free Spring Seminar**  
SMT Design for Manufacturing  
Speaker: Vern Solberg.  
**9** **Houston IPC General Meeting**  
Topic: PCB Laminates and Resins

#### July

- 11** **Houston IPC General Meeting**  
Topic: Designer Certification Overview

#### September

- 12** **Houston IPC General Meeting**  
Topic: TBD

#### October

- 5** **Houston IPC General Meeting**  
RF Layout Principles  
Speaker: Rick Hartley  
**6** **Houston IPC Fall Seminar**  
EMI & Crosstalk Control-a Practice Approach  
Speaker: Rick Hartley

#### November

- 14** **Houston IPC General Meeting**  
Topic: Packaging Techniques.