



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



**ABOUT THE PRESENTER**  
Leo Lambert  
Vice President,  
Technical Director

## Welcome to the EPTAC Webinar Series: Inspection: Tips & Techniques for PCB Assembly Inspection

You are connected to our live presentation delivered via the internet.  
The webinar will begin shortly.

You will see the presentation slides on your computer monitor.  
To hear the audio, you must use a telephone.



**For Audio:** Please use a telephone  
and call: United States: (616) 883-8055

Enter access code: 362-274-867

Sponsored by:

**STANLEY**  
Supply & Services



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

# Attendee Quick Reference

- You can ask questions by typing text directly to the presenter using the “Question and Answer” box

### Control Panel Features:

Once you have joined our Webinar, you will see this GoToWebinar Control Panel and Grab Tab. The control panel contains three panes that can be expanded or collapsed by clicking the arrow on the left side of each pane.

### To Leave a Webinar:

- From the Attendee Control Panel **File** Menu, select **Exit – Leave Webinar**.
- On the **Leave Webinar?** Confirmation dialog box, click **Yes**.

The screenshot shows the GoToWebinar Control Panel interface. On the left, there are three expandable panes: 'My Details', 'Webinar Info', and 'Grab Tab'. On the right, there is a 'Question and Answer' pane. Red lines connect the text descriptions to the corresponding UI elements.

- My Details:** Shows the attendee name and Satisfaction Rating. Attendees can change their Satisfaction Rating by clicking on the drop-down arrow.
- Webinar Info:** Provided for quick reference.
- Grab Tab:** Enables attendees to minimize the Control Panel to the side of their desktops and still access Viewer tools.
- Question and Answer:** If turned on by an organizer, attendees can submit questions and review answers. Broadcast messages from an organizer will also show here.

Sponsored by:  
**STANLEY**  
Supply & Services

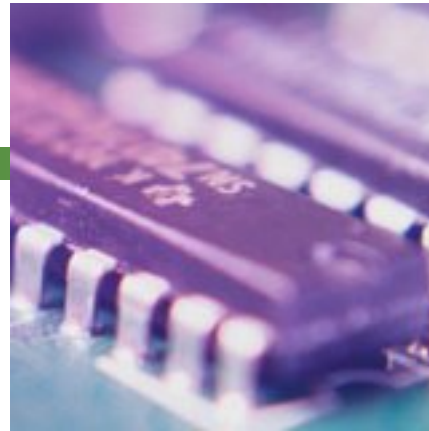


THE LEADER IN  
HI-TECH TRAINING

**800-643-7822**  
[www.eptac.com](http://www.eptac.com)



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director



# Inspection: Quick Tips & Techniques for PCB Assembly Inspection

Sponsored by:

**STANLEY**  
Supply & Services



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



ABOUT THE PRESENTER  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:

**STANLEY**  
Supply & Services

## What is Visual Inspection?

- Comparison against a master or another object

**“The act of examining carefully”**



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



ABOUT THE PRESENTER  
**Leo Lambert**  
Vice President,  
Technical Director

## About Inspection

- Visual inspection accuracy is about 80% effective
- So, we have to ask:
  - Are we seeing everything we should be?

Sponsored by:

**STANLEY**  
Supply & Services



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

## How to Inspect

The ability to detect differences is the first item to review because:

- Inspecting electronic products vary in size, complexity, density and total amount of opportunities

Sponsored by:

**STANLEY**  
Supply & Services



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



ABOUT THE PRESENTER  
**Leo Lambert**  
Vice President,  
Technical Director

## How Do We Train Inspectors?

- We learn IPC-A-610
  - It tells us what a good solder joint look like
  - But how do we put this into practice?

Sponsored by:

**STANLEY**  
Supply & Services



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



ABOUT THE PRESENTER  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:

**STANLEY**  
Supply & Services

## What About J-STD-001

- We learn J-STD-001 on how to make good solder joints, but how do we inspect those joints?
  - We compare them to pictures from all of those specifications, or
  - We can use auto-inspection comparative systems
  - We can use x-ray systems





THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:

**STANLEY**  
Supply & Services

## Prerequisites

- Keep in mind we are inspecting solder joints, component anomalies, positional differences.
- We try to guess what the inside of the solder joint is all about by looking at outside characteristics.
- But can all of this information tell us if there is a good intermetallic compound layer?



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



ABOUT THE PRESENTER  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:

**STANLEY**  
Supply & Services

## Prerequisites

- We need to address our ability to distinguish what we are looking at:
  - How accurate is our ability to look at things?
  - Is there a process we can use to improve our ability to see what we are looking at?



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

## A Thought on How To Improve Our Observations Skills

- Let's take a look at some of the following pictures . . .

Sponsored by:

**STANLEY**  
Supply & Services



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



ABOUT THE PRESENTER  
Leo Lambert  
Vice President,  
Technical Director

Sponsored by:

**STANLEY**  
Supply & Services

## Can You Make the Distinction?

Read the color not the name

YELLOW	BLUE	ORANGE
BLACK	RED	GREEN
PURPLE	YELLOW	RED
ORANGE	GREEN	BLACK
BLUE	RED	PURPLE
GREEN	BLUE	ORANGE



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



ABOUT THE PRESENTER  
Leo Lambert  
Vice President,  
Technical Director

## What's Happening

---

**Left – Right Conflict**  
Your right brain tries to say the colour but  
your left brain insists on reading the word.

Sponsored by:

**STANLEY**  
Supply & Services



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



ABOUT THE PRESENTER  
**Leo Lambert**  
Vice President,  
Technical Director

## We Need to Know What We Are Looking For

- Next few slides are to find out whether or not we can find the anomaly in the pictures.
- We need to be able to see differences as we inspect boards and this is a good example of trying to find differences.

Sponsored by:

**STANLEY**  
Supply & Services



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
[www.eptac.com](http://www.eptac.com)



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:

**STANLEY**  
Supply & Services

## Can You Find the Man?





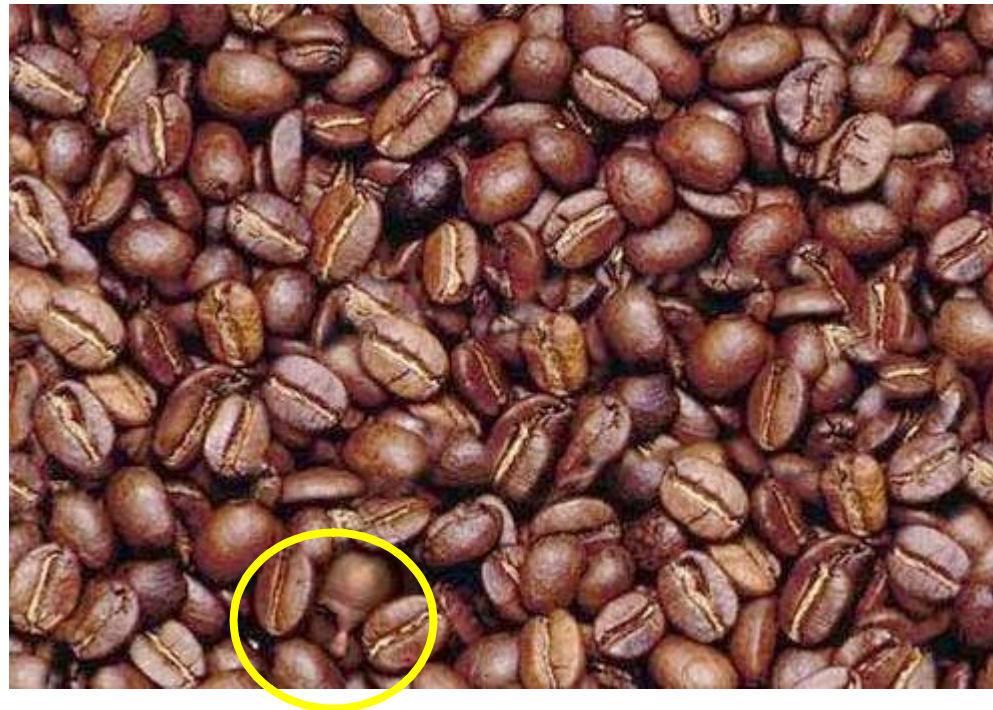
THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:  
**STANLEY**  
Supply & Services

## Here He Is







THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



ABOUT THE PRESENTER  
**Leo Lambert**  
Vice President,  
Technical Director

## Where Are The Differences?

- Although things look the same there are some differences.
- How about this one?
- How many faces can you spot?

Sponsored by:

**STANLEY**  
Supply & Services

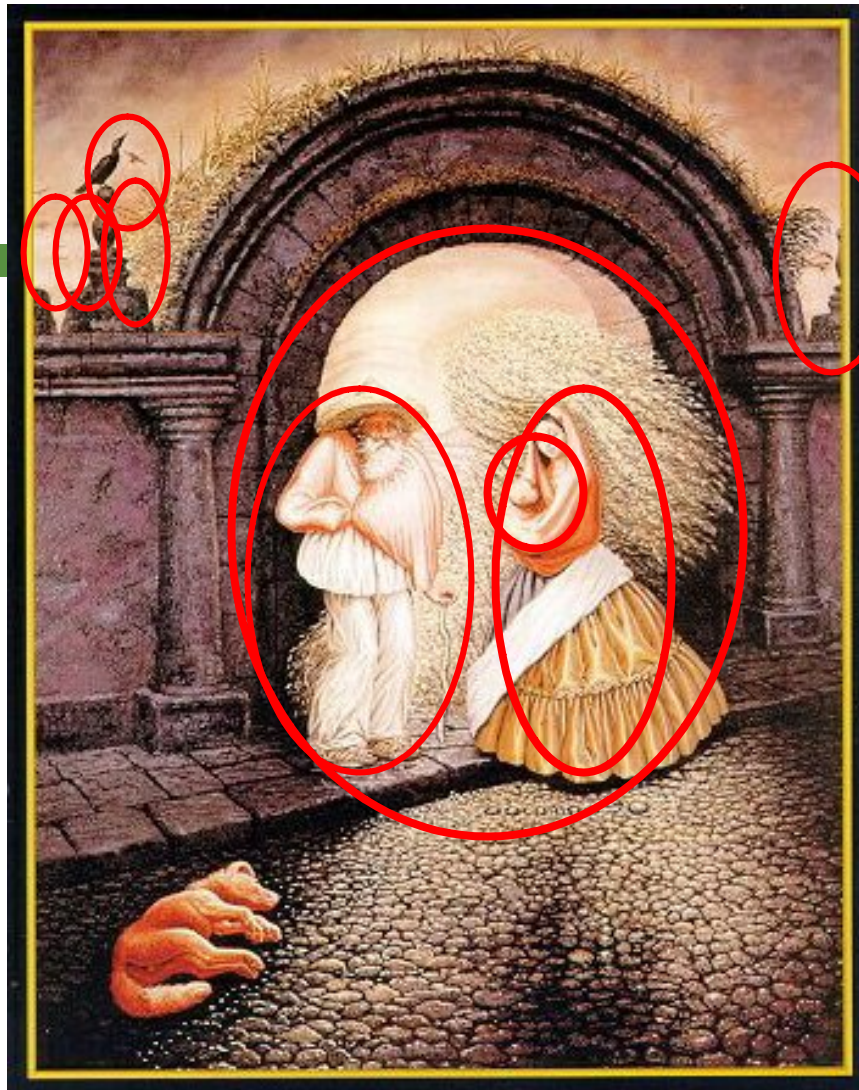


THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
[www.eptac.com](http://www.eptac.com)



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:  
**STANLEY**  
Supply & Services





THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:

**STANLEY**  
Supply & Services

# Find Four Differences





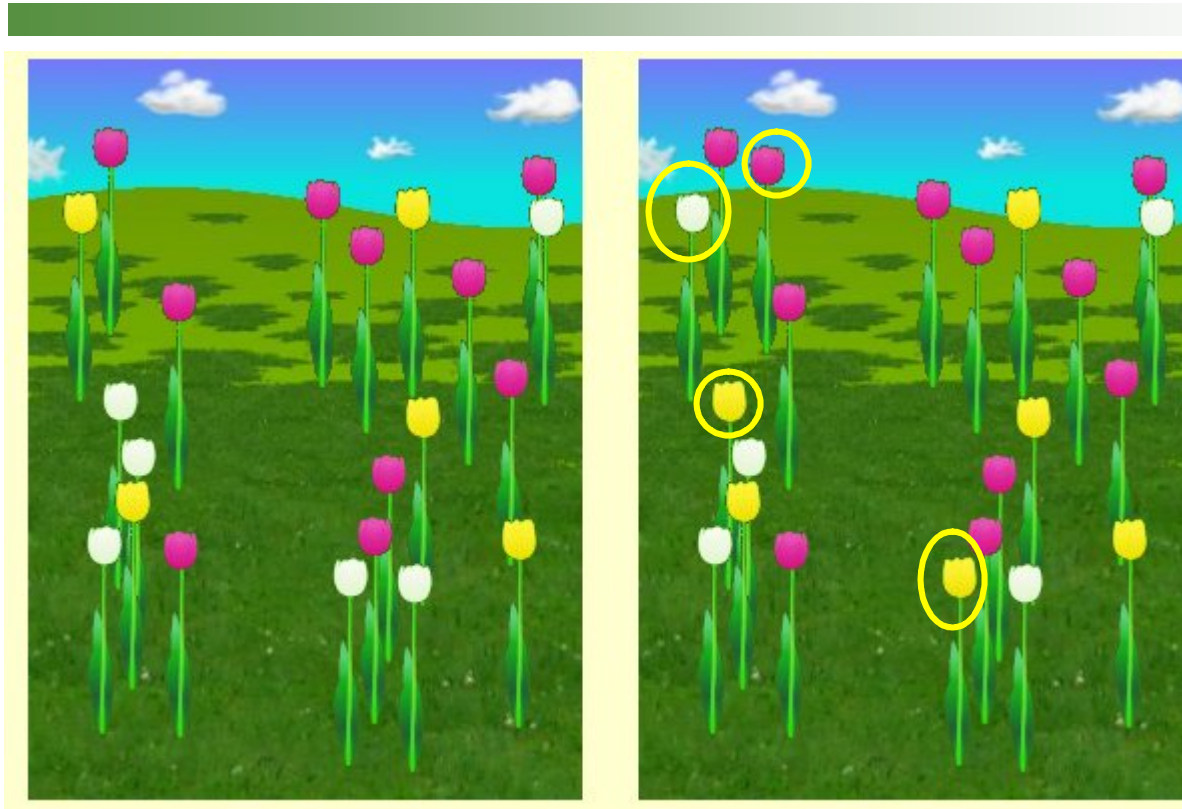
THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:  
**STANLEY**  
Supply & Services

# Find Four Differences



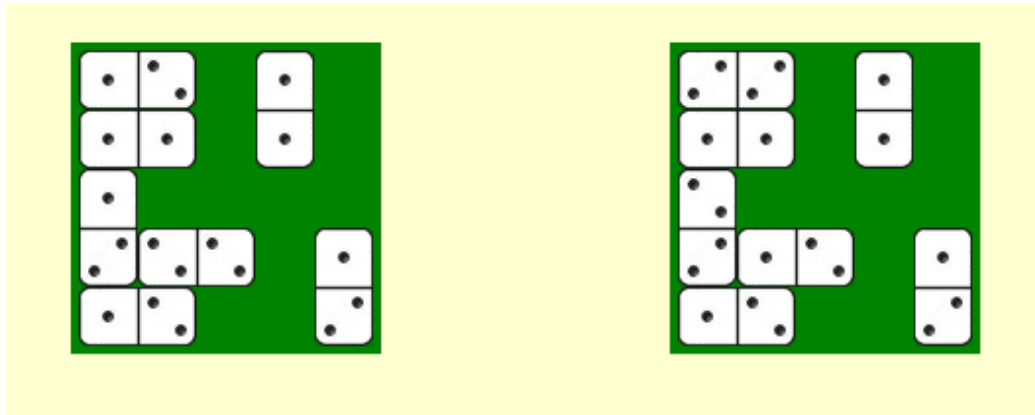


THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

## How About These Dominoes?



Sponsored by:

**STANLEY**  
Supply & Services

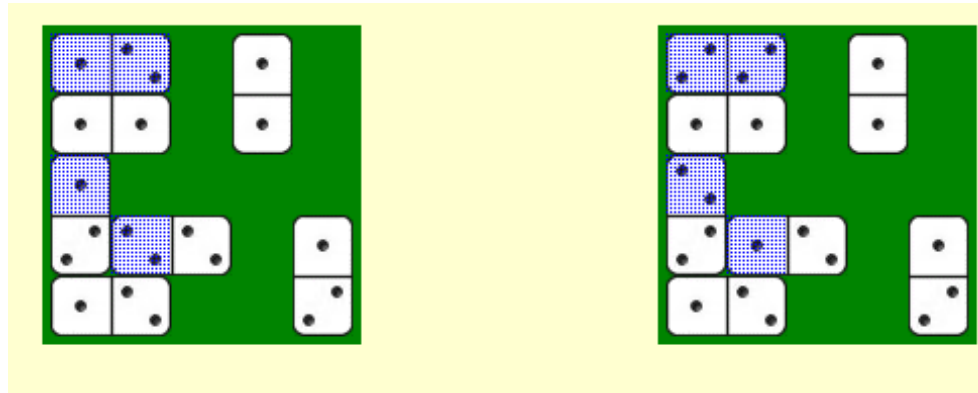


THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

# How About These Dominoes?



Sponsored by:

**STANLEY**  
Supply & Services



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:

**STANLEY**  
Supply & Services

## Text

- How about reading the following sentence . . .



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:

**STANLEY**  
Supply & Services

# Can You Read This?

## The Human Mind

i cdnuolt blveiee taht I cluod aulacly uesdnatnrd waht I was  
rdgnieg. The phaonmneal pweor of the hmuan mnid. Aoccdrnig  
to a rscheearch at Cmabrigde Uinervtisy, it deosn't mttar in  
waht oredr the ltteers in a wrod are, the olny iprmoatnt tihng is  
taht the frist and lsat ltteer be in the rghit pclae. The rset can  
be a taotl mses and you can sitll raed it wouthit a porbelm. Tihs  
is bcuseae the huamn mnid deos not raed ervey lteter by istlef,  
but the wrod as a wlohe. Amzanig huh? yaeh and I awlyas  
thought slpeling was ipmorantt





THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
[www.eptac.com](http://www.eptac.com)



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:

**STANLEY**  
Supply & Services

# Reflections





THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:

**STANLEY**  
Supply & Services

## Does Anything Stand Out?



[www.planetperplex.com](http://www.planetperplex.com)



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

## Count the “F” Letters

- FINISHED FILES ARE THE RESULT OF YEARS OF SCIENTIFIC STUDY COMBINED WITH THE EXPERIENCE OF YEARS

Sponsored by:

**STANLEY**  
Supply & Services



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



ABOUT THE PRESENTER  
**Leo Lambert**  
Vice President,  
Technical Director

## Count the “F” Letters

- FINISHED FILES ARE THE RESULT OF F YEARS OF F SCIENTIFIFIC STUDY COMBINED WITH THE EXPERIENCE OF F YEARS

Sponsored by:

**STANLEY**  
Supply & Services



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
[www.eptac.com](http://www.eptac.com)



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:

**STANLEY**  
Supply & Services

## Do You See the Two Words?





THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:

**STANLEY**  
Supply & Services

## July Webinar

- Part 2 of this topic -- I'll give you my tips on inspecting these kinds of products . . .



THE LEADER IN  
HI-TECH TRAINING

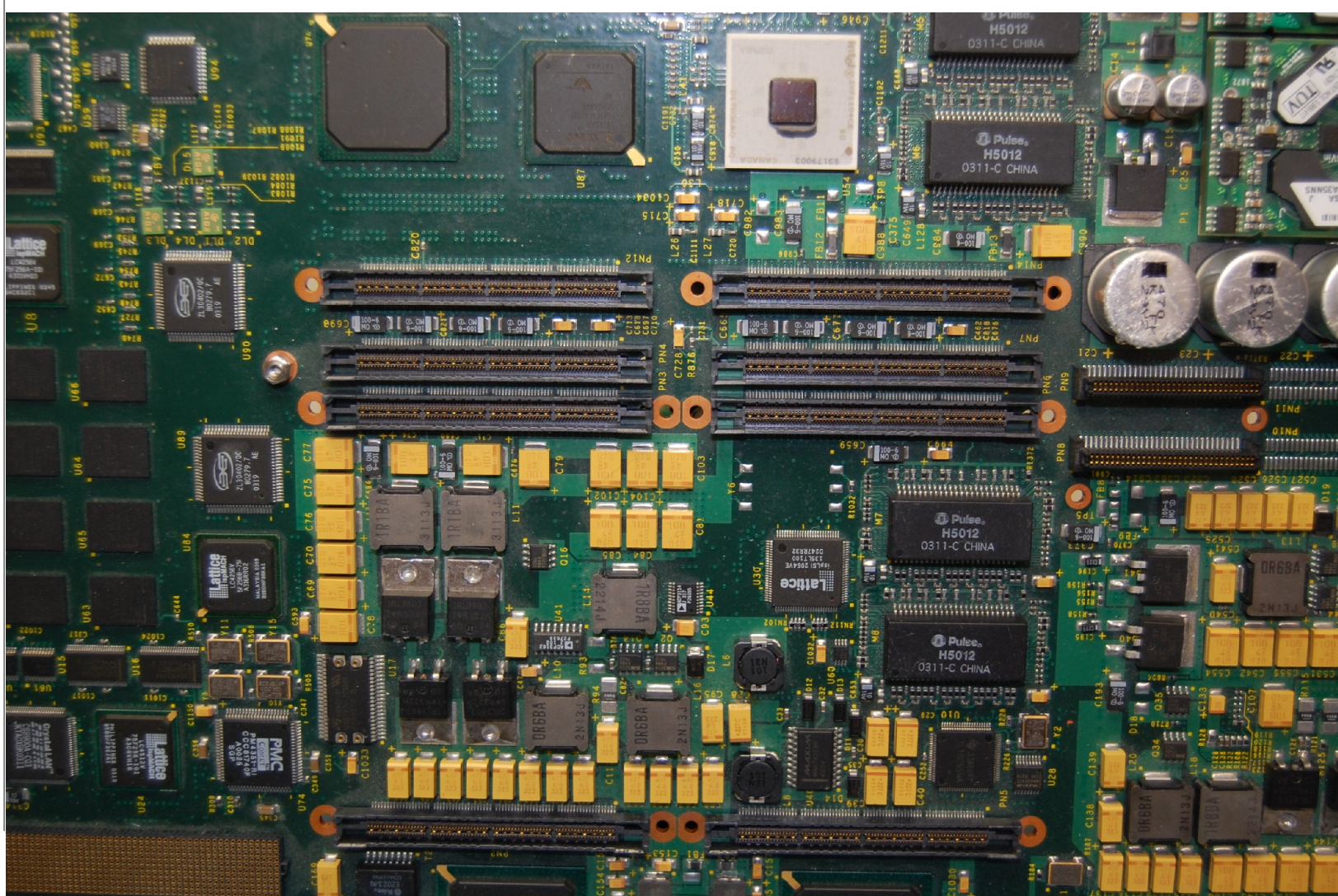
800-643-7822  
www.eptac.com



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:

**STANLEY**  
Supply & Services





THE LEADER IN  
HI-TECH TRAINING

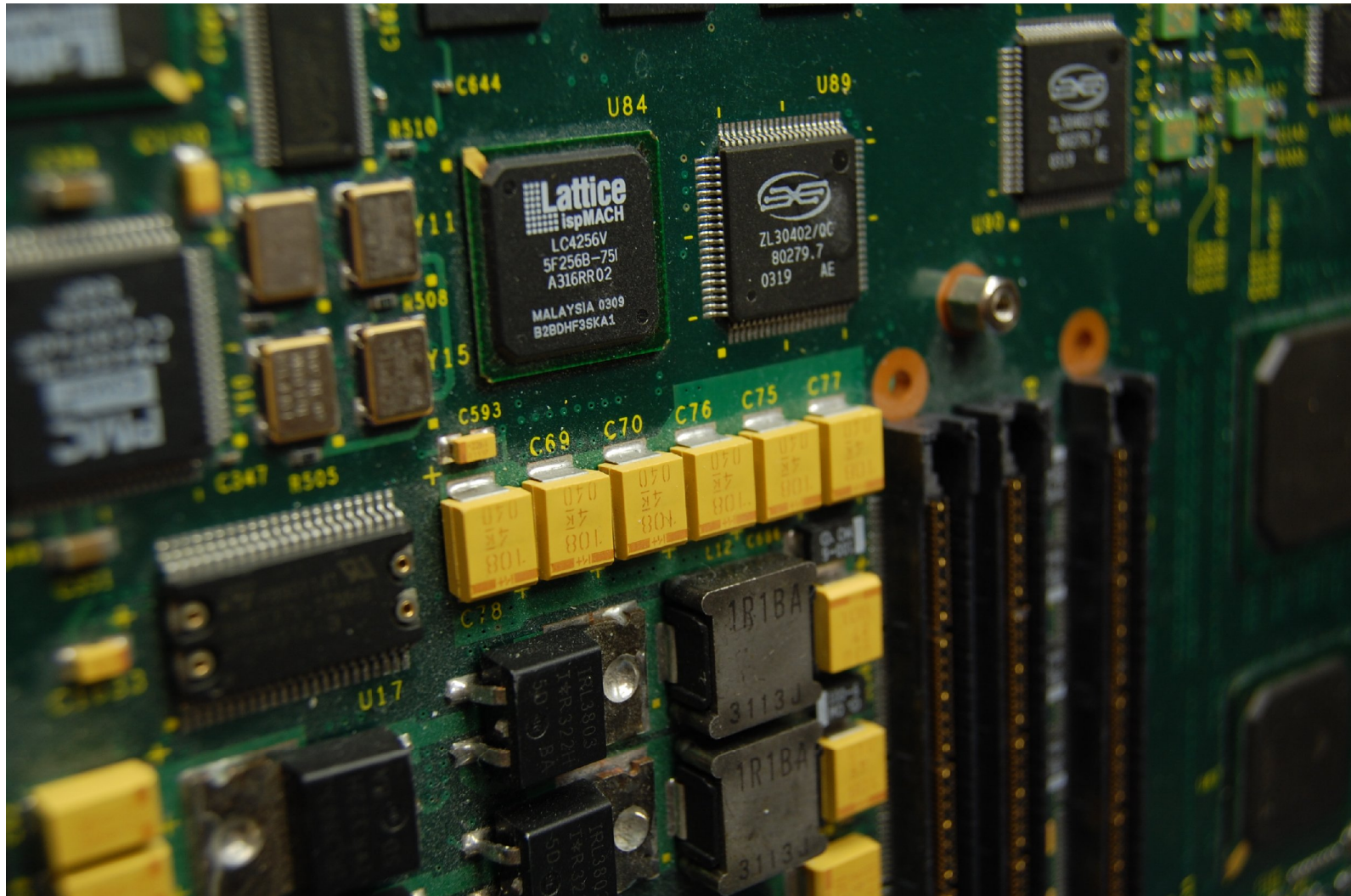
800-643-7822  
www.eptac.com



ABOUT THE PRESENTER  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:

**STANLEY**  
Supply & Services







THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



**ABOUT THE PRESENTER**  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:

**STANLEY**  
Supply & Services

## Upcoming . . .

- July 16 --
  - Part II of the inspection process.
  - I'm going to provide you with how I would attack the process of inspecting printed circuit board assemblies.



THE LEADER IN  
HI-TECH TRAINING  
**800-643-7822**  
www.eptac.com



ABOUT THE PRESENTER  
**Leo Lambert**  
Vice President,  
Technical Director

Sponsored by:

**STANLEY**  
Supply & Services

## Further Information

For questions regarding this webinar,  
please contact Leo Lambert at

[leo@eptac.com](mailto:leo@eptac.com)

For information on any of EPTAC's or IPC's  
Certification Courses, please visit our  
website at <http://www.eptac.com>