

## Board Stress Analysis

**ECT S.O. Number:**

**ECT Customer:**

**Date:**

**Pass/Fail ECT Criteria:**

### Overview

A board stress analysis was performed on the above Everett Charles Technologies shop order number. The board stress analysis represents a static snapshot of the base PCB under full loading in the in-circuit test fixture. Actual results will vary because of the effects of component stiffening, PCB layer makeup, customer vacuum pressure as well as the associated dynamics that occur during test.

### Inputs & Output

The board stress analysis utilizes the outputs directly from the ECT CAF software. Top and bottom side probe forces are assumed to be at 2/3 travel values. PCBA fixture restraints such as top and bottom side zero-flex milling, push-finger and UUT support locations as well as any allowable back-up blocks are all considered. Air pressure resulting from vacuum is assumed to be 12.7 pounds per square inch.

Once all values have been input, a static analysis is performed. The accompanying plot illustrates the resulting deflection. All dimensions are in inches. Areas of greatest upward deflection (away from the probe field) occur in red. Red indicates deflection of 0.010 inch or greater. In order to pass ECT criteria the maximum value should be 0.010 inch or less.

### Conclusion

- The overall maximum deflection predicted is 0.0057 inch. This value is within ECT's acceptable limit of 0.010 inch.

Figure 1: Resultant PCB Flex

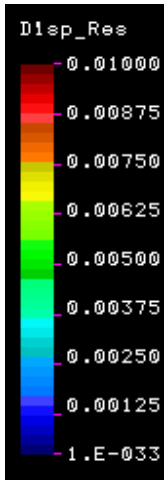
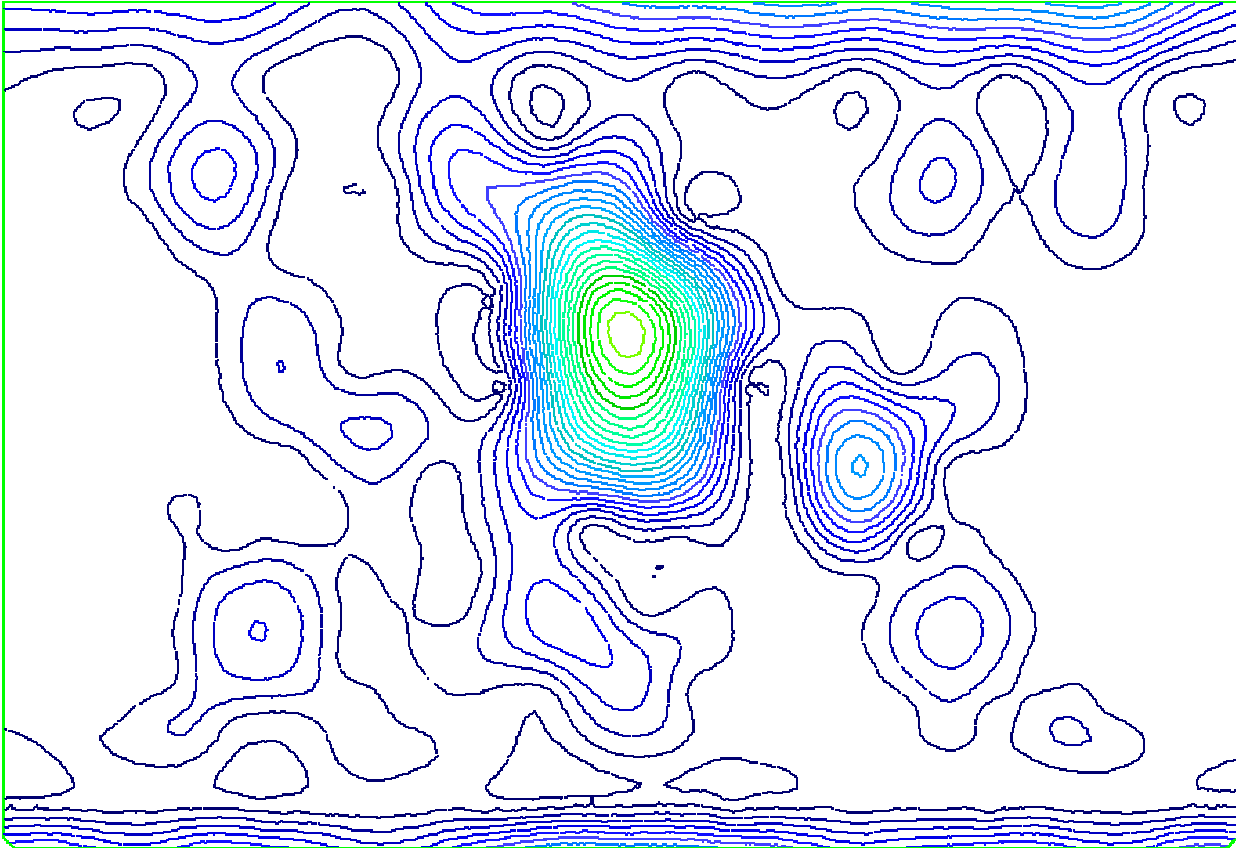
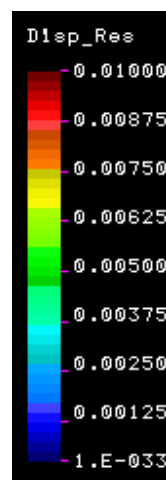
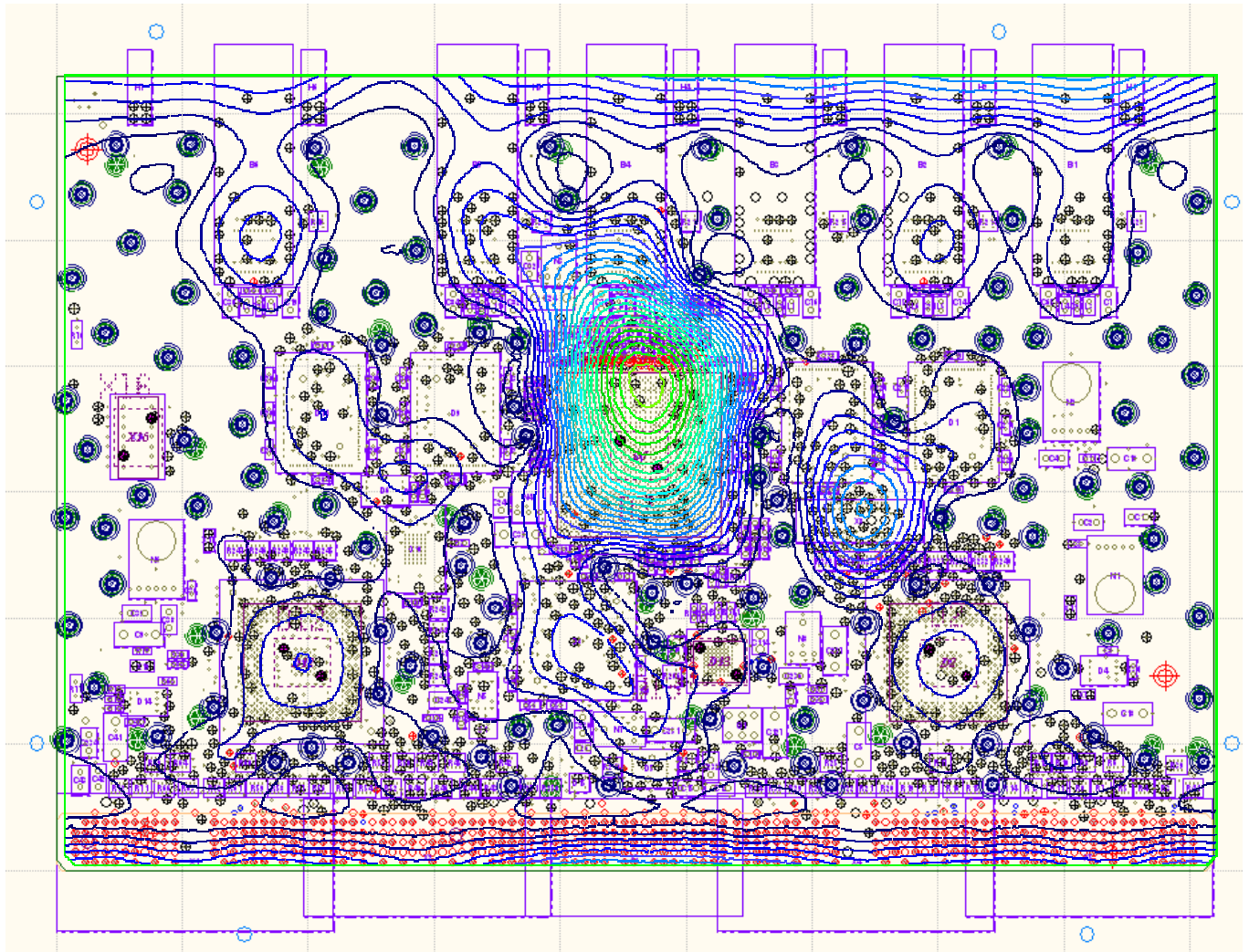


Figure 2: ECT-CAF Loading & Device Map



## \*\*\*ECT BOARD FLEX ANALYSIS\*\*\*

THE BOARD STRESS ANALYSIS (BSA) PROVIDED (AS A FREE FEATURE) IS A MATHEMATICAL MODEL THAT PREDICTS DEFLECTIONS THE PCBA WILL INCUR DURING TEST. EVERETT CHARLES TECHNOLOGIES (ECT) HAS VALIDATED ITS BSA SOFTWARE USING DIRECT MEASUREMENT TECHNIQUES. MANY CRITICAL FIXTURE PARAMETERS ARE USED IN THE BSA, SOME NOTABLE ONES INCLUDE PROBE PLACEMENT, PROBE FORCE AND FINGER/SUPPORT LOCATIONS. THE MAP OF DEFLECTION PROVIDED IS NOT A GUARANTEE THAT THE PCBA OR COMPONENTS ON THE PCBA WON'T BE DAMAGED DURING TEST. THE MAP RATHER SHOWS THE RELATIVE DEFLECTIONS BASED UPON HOW THE FIXTURE WAS ORIGINALLY MANUFACTURED BY ECT. IN THE EVENT THAT CRITICAL FIXTURE FEATURES ARE CHANGED, SUCH AS PROBE PLACEMENT, PROBE FORCE AND FINGER/SUPPORT LOCATIONS, THE BSA WILL NO LONGER HAVE ANY VALIDITY. A NEW BSA WOULD HAVE TO BE RUN BY ECT, USING THE UPDATE FORCES AND CONSTRAINTS, TO BE VALID