

## **Component Offset and alignment routines (to be performed after camera calibration)**

### **SET COMPONENT ROTATION – CAMERA 2 – Fixed Camera**

- 1) Set up a test board in the machine so that you can place rows of components both passive and QFP's.
- 2) Place QFP's at 0 degrees placement angle using Camera 2 (Fixed camera). Observe angular placement of components.
- 3) If components are placing rotated determine the rotation and go back into 'Factory Settings'.
- 4) In Camera Select click Camera 2 and adjust camera angle in the Camera Select box to line up QFP's. Exit and save settings.
- 5) Repeat from 1 and ensure components are placing correctly.

### **SET COMPONENT ROTATION – CAMERA 1 – OTF Camera**

- 1) Set up a test board in the machine so that you can place rows of components using Camera 1 (OTF camera).
- 2) Place components using Camera 1 (OTF camera). Observe angular placement of components.
- 3) If components are placing rotated determine the rotation and go back into 'Factory Settings'.
- 4) In Camera Select click Camera 1 and adjust camera angle in the Camera Select box to line up the components. Exit and save settings.
- 5) Repeat from 1 and ensure components are placing correctly.

### **SET FIDUCIAL CAMERA OFFSET – CAMERA 3 – Fiducial Camera**

Note: its important to perform this after the fiducial camera is initially set reasonably accurately with the Fid Camera Offset X and Y values visible along the bottom of the screen when first entering into the 'Factory Settings' screen.

- 1) Set up a test board in the machine so that you can place rows of components using Camera 1 (OTF camera). **Important:** Set the board up using the fiducial camera for correction.
- 2) Place a row of components using Camera 1 (OTF camera) at 0 deg. rotation. Observe the overall placement position of the components on the board.
- 3) If components are misplaced, determine the average offsets (Let's assume they are all placing 3 thou low).
- 4) Go back into 'Factory Settings'. Click on Offsets and the offset dialogue box will open. Enter the correction offset into the 'Fid cam offset' box (From the assumption they are all placing 3 thou low; add 3 thou to the Y box). Exit and save settings.

### **SET FIXED CAMERA TO HEAD OFFSET (RV4 only)**

Note: To be performed following on from the previous section

- 1) Now place a row of QFP's using Camera 2 (Fixed camera) at 0 deg. Rotation. Observe the overall placement position of the components on the board.
- 2) If components are misplaced, determine the average offsets (Let's assume they are all placing 1 thou high).
- 3) Go back into 'Factory Settings'. Click on Offsets and the offset dialogue box will open. Enter the correction offset into the 'Fixed to head cam

offset' box (From the assumption they are all placing 1 thou low; add -1 thou to the Y box). Exit and save settings.

### **SET ROTATIONAL MISALIGNMENT– CAMERA 1 – OTF Camera**

Note: To be performed following on from the previous section

- 1) Place a row of components using Camera 1 (OTF camera). Half of the components should be placed at 0 deg. rotation and the other half at 90 deg. rotation. Observe the overall placement position of the components on the board.
- 2) If the 90 deg. Rotated components are misplaced, determine the average offsets.
- 3) Go back into 'Factory Settings'. Click on Offsets and the offset dialogue box will open. Enter the correction offsets into the 'Extra adjustment – Camera 1" box. Exit and save settings.

### **SET ROTATIONAL MISALIGNMENT– CAMERA 2 – Fixed Camera**

Note: To be performed following on from the previous section

- 1) Place a row of components using Camera 2 (Fixed camera). Half of the components should be placed at 0 deg. rotation and the other half at 90 deg. rotation. Observe the overall placement position of the components on the board.
- 2) If the 90 deg. Rotated components are misplaced in, determine the average offsets.
- 3) Go back into 'Factory Settings'. Click on Offsets and the offset dialogue box will open. Enter the correction offsets into the 'Extra adjustment – Camera 2" box. Exit and save settings.

4) In Camera Select click Camera 2 and adjust camera angle in the Camera Select box to line up the components. Exit and save settings.

5) Repeat from 1 and ensure components are placing correctly.

